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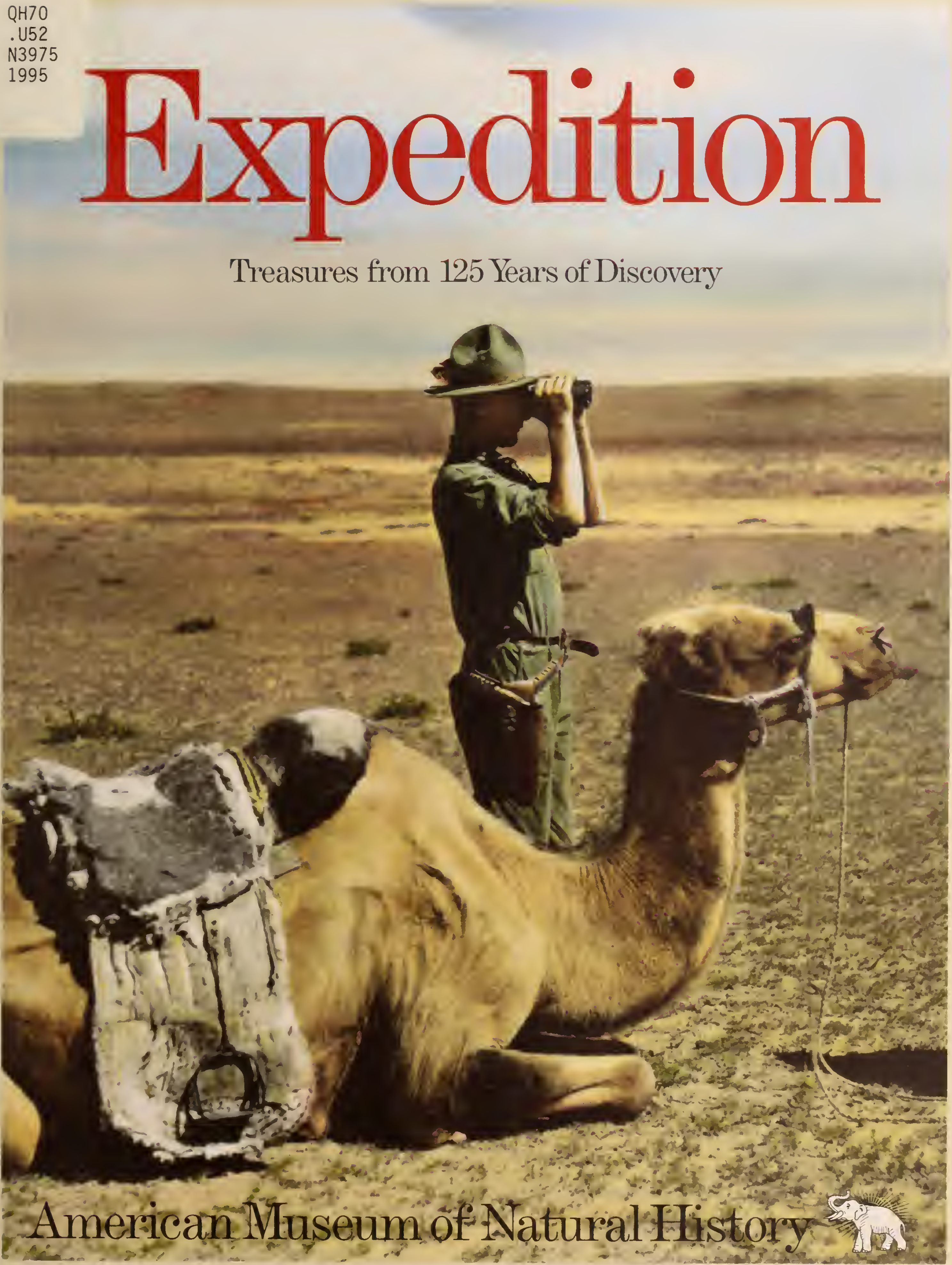
Expedition

Treasures from 125 Years of Discovery



American Museum of Natural History

Treasures

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The American Museum of Natural History is pleased
to dedicate the Expedition program and guidebook to

Eileen P. Bernard

on her 80th birthday, in recognition of
her adventurous spirit and the numerous expeditions
she led for her children and grandchildren throughout New York City.

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About Your Expedition

Expedition: Treasures from 125 Years of Discovery, a specially designed, self-guided tour of fifty treasures of the American Museum of Natural History, is one of many special events and exhibitions celebrating the Museum's 125th anniversary. The second-floor "base camp" is the starting point for your expedition. From there, you may begin a journey through four floors of the Museum, discovering fascinating artifacts, specimens, and exhibits on each. These treasures, numbered one through fifty (beginning on the first floor and moving up), are each identified by a yellow banner with the treasure's number on it.

While the numbering of the treasures was conceived to carve the most straightforward route through the vast Museum, there is no single correct pathway to follow. Feel free to create your own expedition, based on your own interests, or to follow one of the three variations we have devised. These take thirty, forty-five, and sixty minutes respectively, and are described on page 39. "Field Stations," located throughout the Museum, are staffed by volunteers who will answer any questions you might have. The Museum guards are another valuable source of assistance.

Whichever route you decide to follow, this book can serve as your guide. It contains an illustration of each of the fifty treasures, accompanied by a short text that illuminates the treasure's origins and significance. Also included are small "locator maps," on which the treasures reproduced on that page are marked, as well as complete floor plans, on pages 36–37. A guidebook written especially for children is available at the base camp. In addition, a state-of-the-art CD audio player (Gallery Guide) is also available. More detailed information on the audio player is on page 38.

This book is yours to keep. We hope that it will remind you of an exciting journey of discovery, and that it will remain an informative resource for years to come.

Enjoy your adventure.

A Letter from the President

Welcome to *Expedition: Treasures from 125 Years of Discovery.* Since its founding in 1869, the American Museum of Natural History has sponsored more than 1,000 expeditions, to places as far away as Mongolia and Madagascar, and as near as Mexico and Montana. Expeditions continue to play a vital role in the work of this great institution, numbering more than 100 every year. Now, to help us celebrate our 125th anniversary, we invite you to embark on your own expedition of discovery, traveling to seven continents and through millions of years, all without leaving the Museum. We hope that you will experience some of the wonder and revelation that is at the heart of scientific exploration. We also hope that, like our scientists, you will complete your expedition with a deeper understanding of the world and our place in it.

Together, these fifty treasures will give you an idea of the enormous depth and variety of the Museum's collections and scientific activity. If this is your introduction to those collections, we hope you will be intrigued enough to return to explore our halls in depth. If you are an old friend of the Museum, we hope not only to give you new insights into our collections, but also to open new windows onto your world.

Thank you for joining us.

Ellen V. Futter
President
American Museum of Natural History

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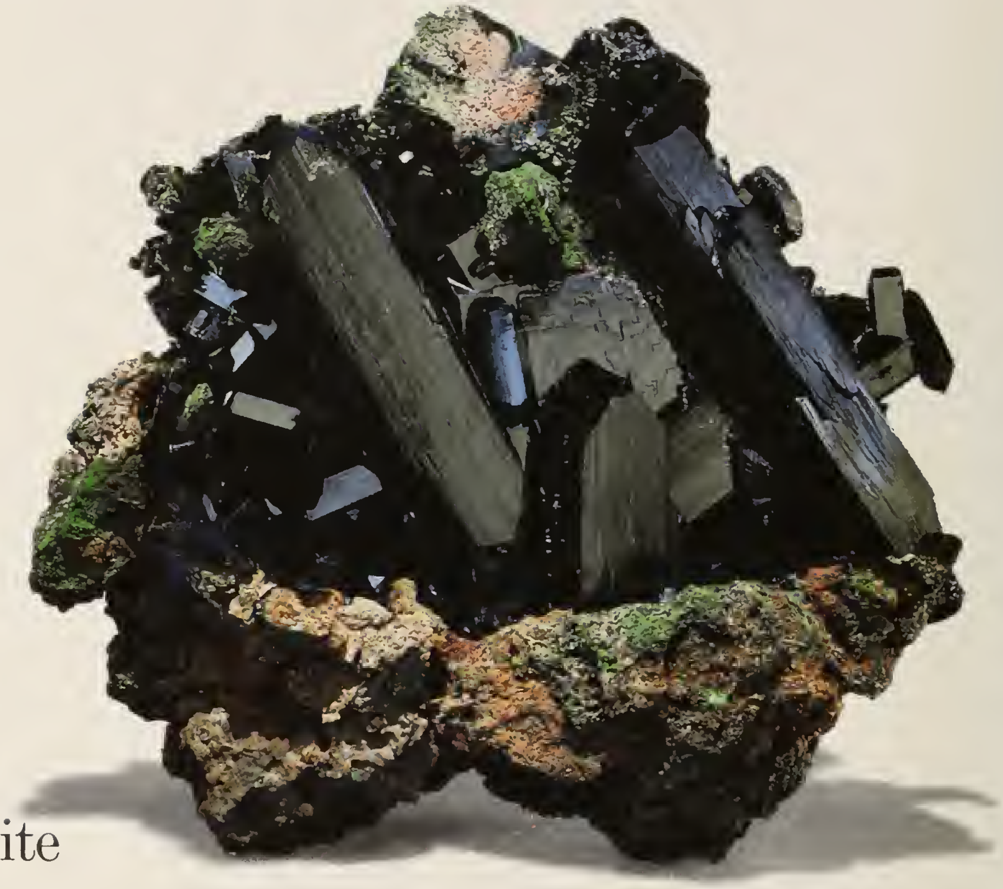


1.

Newmont Azurite

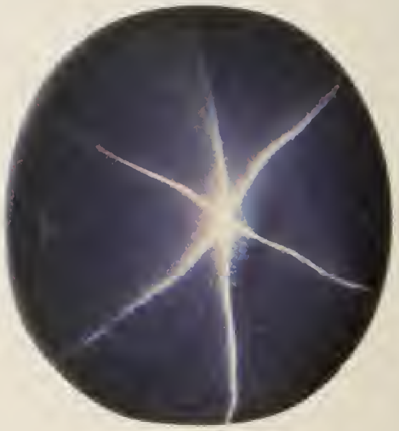
The Newmont Azurite is considered to be one of the world's finest mineral specimens of its kind. The clusters of dark crystals, sprouting out of copper ore, are perfectly formed and completely unblemished. Furthermore, the crystals measure up to eight inches in length, a phenomenally large size for an azurite.

Azurite, a carbonate of copper, is formed by the interaction of rainwater and groundwater on primary copper ores. On first view it appears black, as can be seen in this specimen, yet careful observation in the right light shows the mineral to be dark blue. Despite the azurite's beauty, it is too soft and fragile to be used as a gem.

The Newmont Azurite is named after the Newmont Mining Corporation, which owned the Namibian copper mine in which the specimen was found in 1952. The miner who discovered it smuggled it out of the mine and used it to pay off his tab at the local tavern. When the company learned of this, it retrieved the mineral and put it on display in its New York office. In 1979 the Newmont Mining Corporation donated the specimen to the Museum, along with an exceptional formation of crystallized gold on view in the same case.

2.

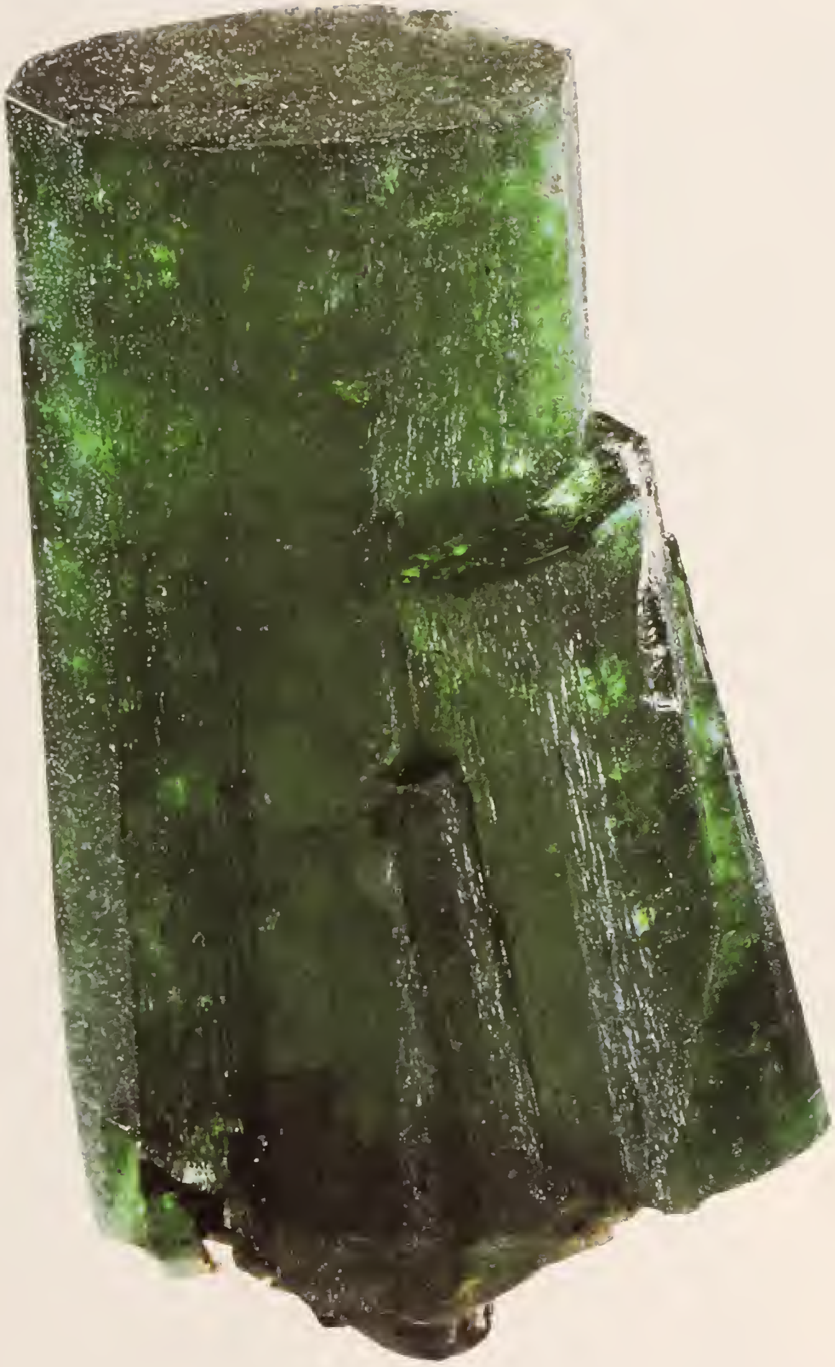
Star of India



The Star of India, at 563 carats, is the largest and most famous star sapphire in the world. Formed some 2 billion years ago, it was discovered, allegedly more than 300 years ago, in Sri Lanka, where excellent sapphires are still to be found in deposits of sand and gravel left by ancient rivers. Industrialist and financier J. P. Morgan, a founding patron of this institution, presented the sapphire to the Museum in 1900. Today, the Star of India is priceless. It is also one of the most renowned objects in all of the Museum's collections.

The presence of the mineral rutile in the Star of India gives the stone its milky quality. This also yields the star effect, as tiny fibers of the mineral, aligned in a three-fold pattern within the gem, reflect incoming light in the star pattern. This effect is known as *asterism*, and, along with color, is one of the characteristics that makes star sapphires so highly prized. Such stones are polished in the domed shape you can see here, called a cabochon, to best reveal the star, which moves with changing angles of illumination and observation.

In 1964 the Star of India was the object of an infamous burglary, carried out by Jack Murphy, known as Murph the Surf, and two other men. The gem was recovered several months later.



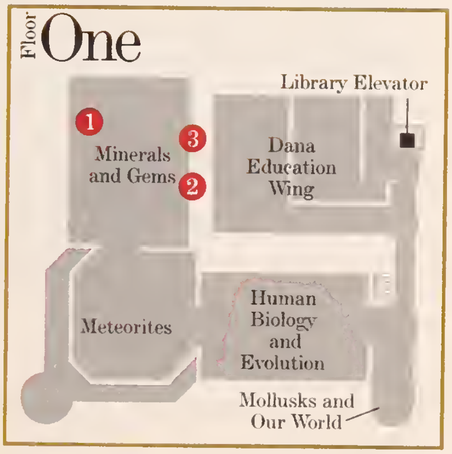
3.

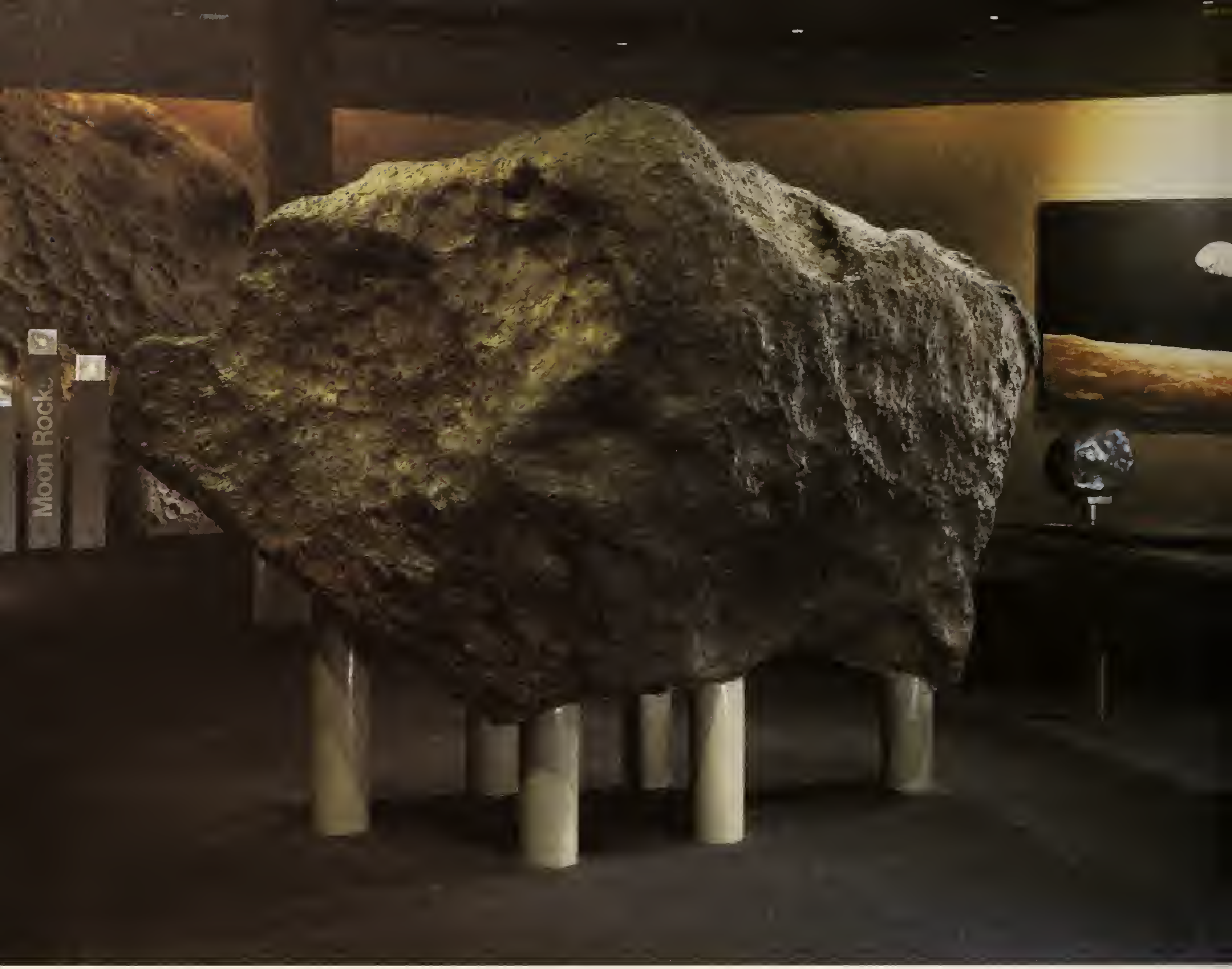
Patricia Emerald

Emeralds as well formed and as large as the Museum's Patricia Emerald are exceedingly rare. Indeed, due to its form, color, and size—632 carats—this specimen is considered to be one of the world's greatest emeralds. Moreover, while most uncut emeralds have six sides, the Patricia Emerald is dihexagonal, or twelve-sided. The emerald was found in the Colombian Andes in 1920, in the Chivor Mine. It is named for the mine-owner's daughter.

The small flaws, or inclusions, in the Patricia Emerald are normal. Because of them, emeralds, although quite hard, are not very durable. In the fifteenth century the native people of South America used the emerald's lack of durability to undermine the Spanish Conquistadors' boundless greed for the gem. The Spaniards were told that a real emerald would not shatter when hit with a hammer, but a false one would: they destroyed countless emeralds in this way before they realized that they were being duped.

The Patricia Emerald is one of a very few large, gem-quality emeralds that have been preserved uncut. Though emeralds have been found in several locations, including Siberia and the United States, Colombia is the world's major source of the mineral today.





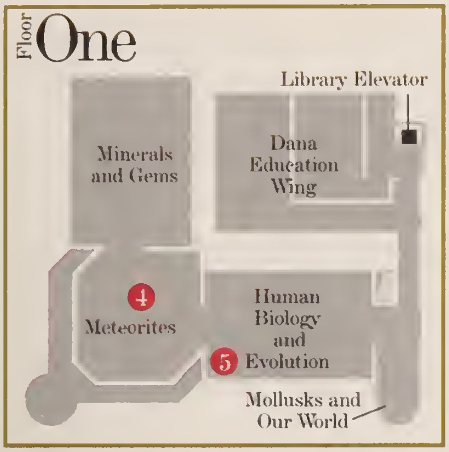
4.
Cape York Meteorite

The Cape York Meteorite—named for the site in Greenland at which it collided with the Earth some 10 thousand years ago—is 4 ½ billion years old. The massive meteorite is so heavy that the supports for the largest of the three pieces on view go through the floor, straight down to the bedrock beneath the building.

Meteorites are meteors that reach the surface of the Earth without having disintegrated. The Cape York Meteorite, which comes from the center of a small planet that was broken apart, is a type known as an iron meteorite; it is composed of metallic iron and nickel, similar to the metallic core at the center of the Earth. The metal, exposed at one end of the largest piece, reveals some of the meteorite's history.

The Cape York Meteorite was discovered in 1894 by Arctic explorer Robert Peary, who brought it to New York three years later, after several expeditions to the site. For centuries it had been used by Eskimos as a source of iron for knives and other weapons (by the time Peary discovered the meteorite, the Eskimos were able to obtain iron through trade). This use is most evident in the two smaller pieces on view, which are worn smooth from scraping. The large piece, which retains more of its pitted surface, is marked by holes that were made after the meteorite arrived at the Museum, for reasons we no longer know.

Visitors are allowed to touch the Cape York Meteorite. When they do so, they are touching an object that is as old as the planets and the Sun, and that has been used for both practical, everyday purposes and for acquiring important information about how the solar system and planets were formed.



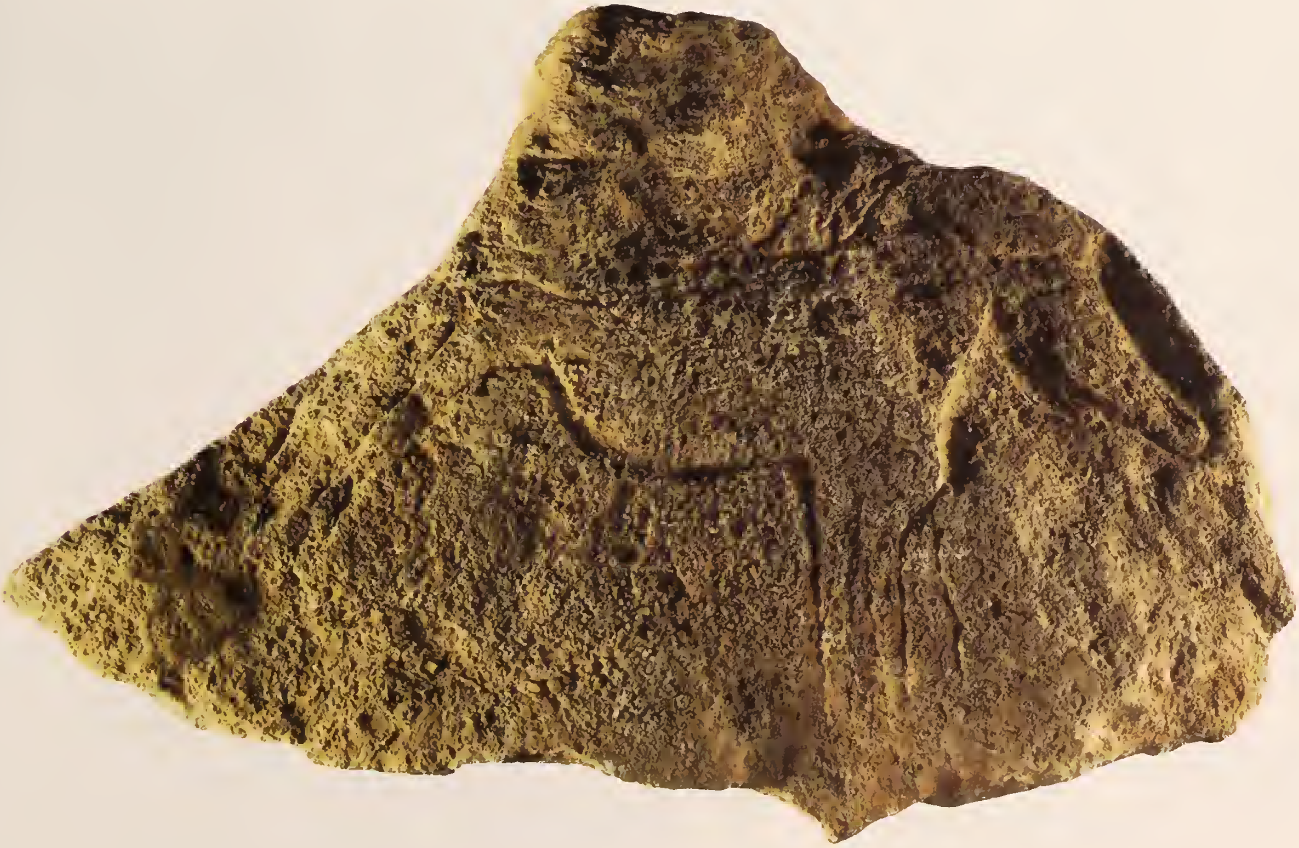
5.

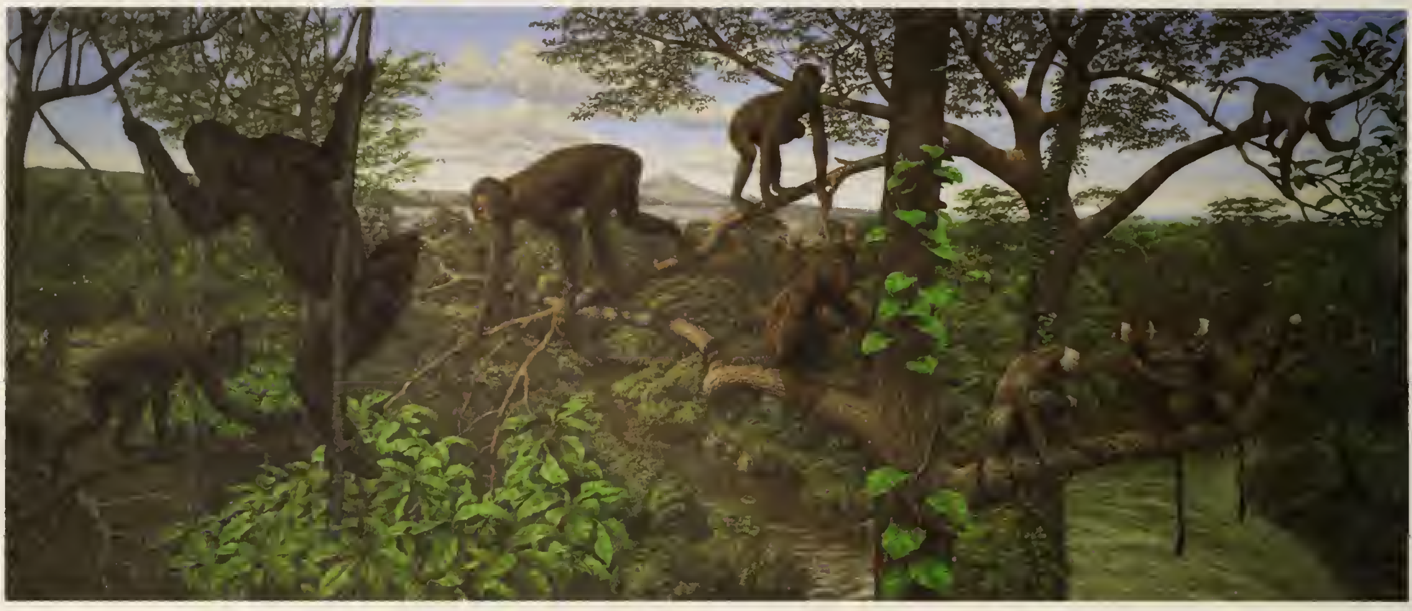
Ice Age Art

Some 26 thousand years old, this image of a horse was incised in limestone by one of the earliest modern inhabitants of the Dordogne region, in Southwestern France. It was discovered in a rock shelter called the Abri Labattut, near Sergeac, and it is a superb example of the Ice Age art in which the region is so rich.

This is not, in fact, a realistic depiction of the Ice Age horse, which was a stocky, pony-like animal. Instead, it is a highly stylized image, the lines of which are perfectly expressive of the movement, grace, and speed of a horse. The artist has added to the power of the image by making the incision slope deeply on one edge, while it is quite shallow on the other, thereby casting a shadow onto the horse and providing the illusion of relief. In the dimness of a rock shelter, this effect would have been still more dramatic. The way the shape of the horse echoes that of the limestone into which it was carved suggests that the image was engraved after the rock was detached from the shelter vault.

Engravings such as this appear to have been characteristic of habitation sites—cave mouths and rock shelters—rather than of the deep cave recesses, rarely penetrated and decorated presumably for ceremonial reasons, from which Ice Age "cave art" is best known.





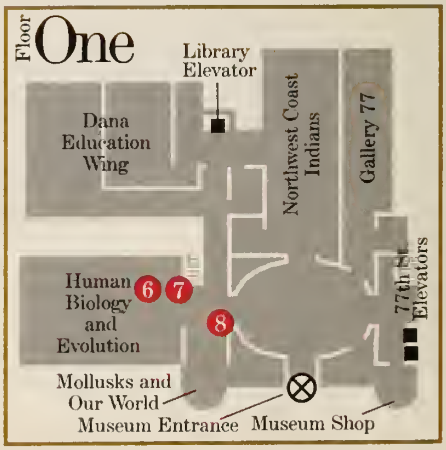
6.

Mural of Primate Evolution

The Mural of Primate Evolution, created by artist Jay Matternes for the 1993 opening of the Hall of Human Biology and Evolution, represents 50 million years of primate evolution through the depiction of five genera representative of their times. Reading from right to left, a panorama in five vignettes allows us to follow changes in skull size, brain size, hand formation, and other characteristics in this remarkably detailed and realistic depiction of early primates and their habitats.

In the right-hand section of the mural, the somewhat squirrel-like *Plesiadapis*, an archaic primate that lived 60 to 53 million years ago, is shown in the region that today is Wyoming. This is followed by *Notharctus*, which lived approximately 48 million years ago. *Notharctus* was a more advanced primate that is quite similar to a modern lemur. It had a larger brain, in comparison to the size of its body, than did earlier primates. It also had forward-facing eyes, and relied less on the sense of smell than did its ancestors. *Notharctus* was common in the rainforests that then covered present-day Wyoming. (Primates not unlike *Notharctus* were similarly well established in Eurasia and possibly Africa.) In the next segment is *Aegyptopithecus*, dating from some 34 million years ago. *Aegyptopithecus,* one of the first higher primates, the group to which humans belong, is known from the Fayum region in Egypt, where it is shown in the mural. Following *Aegyptopithecus* is *Proconsul*, which flourished 19 million years ago. This was one of the earliest ape-like primates. Yet despite an increase in brain size, it was a relatively primitive animal. It is shown in the Miocene forest of what is now Rusinga Island, Kenya. Finally, we see *Sivapithecus*, from about 8 million years ago, whose face and jaw were like the modern orangutan but whose body was still monkey-like. *Sivapithecus* flourished in Pakistan and India; the modern orangutan is found only on the islands of Sumatra and Borneo, although formerly it was found on the east Asian mainland.

Through a remarkable and painstaking technique, Mr. Matternes has given us a clear idea of the appearance of animals that have been extinct for millions of years. He began by drawing a detailed image of each animal's skeletal remains. From there, he built each one up from the inside out, using his extensive knowledge of anatomy and his detailed draftsmanship to add muscle, tissue, skin, and fur to the bones. This precise visual record is carried over to the animals' habitats as well, in everything from the foliage to the light. Thus, through the marriage of art and science, we are given entry to a lost world and a vivid picture of a broad swath of evolution.



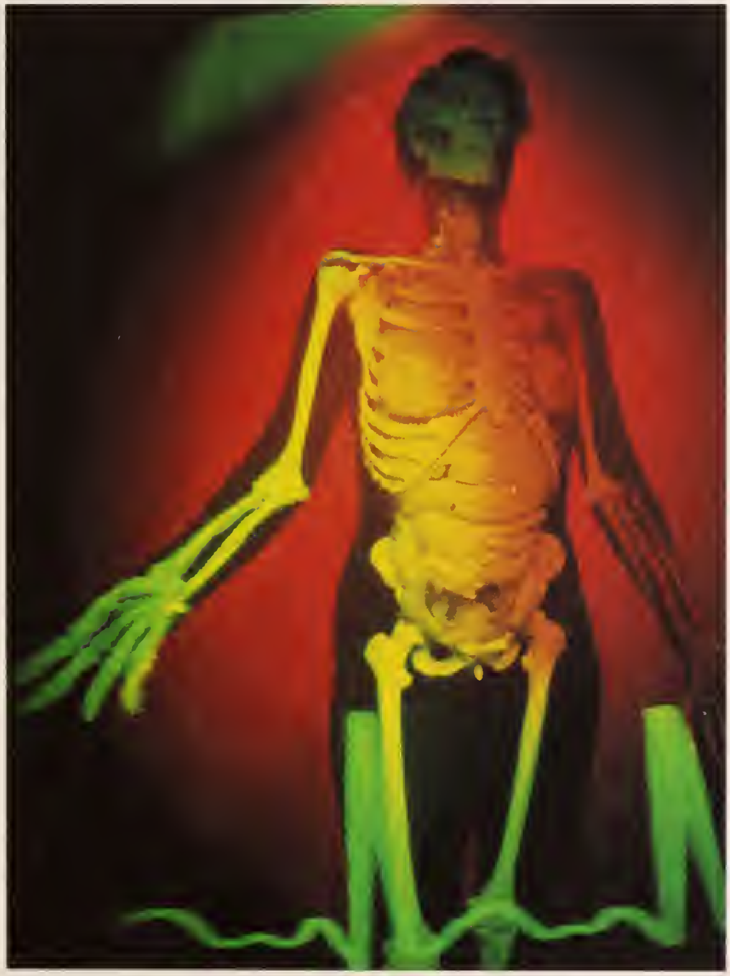
7.

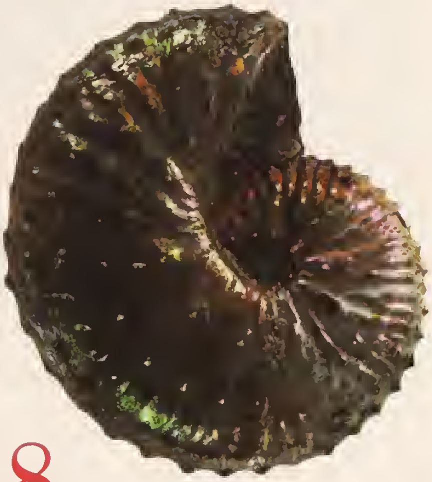
Visible Woman Hologram

This hologram is a highlight of the Museum's Hall of Human Biology and Evolution. As the viewer moves from right to left before the hologram, a complete woman emerges, from the inside out. The first view is of her skeleton, reminding us that humans are vertebrates. A step to the left reveals her internal organs, including her mammary glands (a defining characteristic of mammals), as well as her lungs, stomach, and small and large intestines. Moving a step further to the left we see veins, arteries, and nerves as well as the outline of hair and flesh.

The Visible Woman Hologram derives from a plastic model of a woman that was displayed in the Hall of the Biology of Man, the predecessor to the Hall of Human Biology and Evolution. When the new hall was created, the plastic form was disassembled, layer by layer. Each layer was holographed, and a separate hologram of a live woman was made for the silhouette surrounding the internal parts. These seven images were then assembled and reholographed into this image.

At once captivating and educational, the Visible Woman Hologram is a model of museum exhibition design. In more than one sense, it stands for what we are—our physical selves embodied in the detailed depiction of a human body, our intellectual selves in the complex technology used to create that depiction.





8.

Ammonites

Although relatively simple in form, ammonites are extremely rich in the information they yield to scientists. These extinct marine animals, which thrived in the Paleozoic and Mesozoic Eras, some 400 to 65 million years ago, were cephalopods, and are thus related to squid, octopus, cuttlefish, and the chambered nautilus.

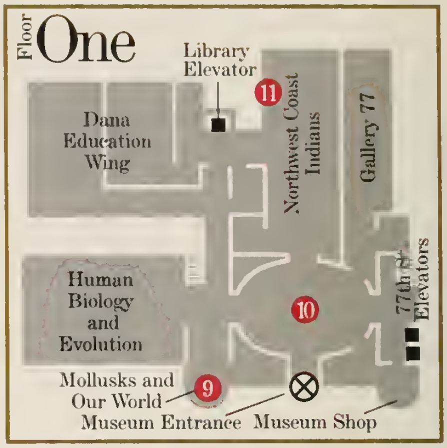
Ammonites were able to swim, thanks to the unique construction of their shell, which was divided into a series of air chambers. The air in the chambers provided buoyancy for the animal to float; like modern cephalopods, they probably moved through the water using jet propulsion.

Fossils of ammonites are found all over the world. As different species of ammonites lived during different time periods, scientists can use these animals to determine the relative age of the rocks in which their fossils are found (such fossils are called "index fossils"). Because ammonites lived exclusively in marine environments, their presence also indicates the location of prehistoric seas.

Many ammonites, including this example, preserve their original shell material and are quite beautiful. Scientists at the American Museum of Natural History are currently studying the evolution and life history of these ancient creatures.

9.

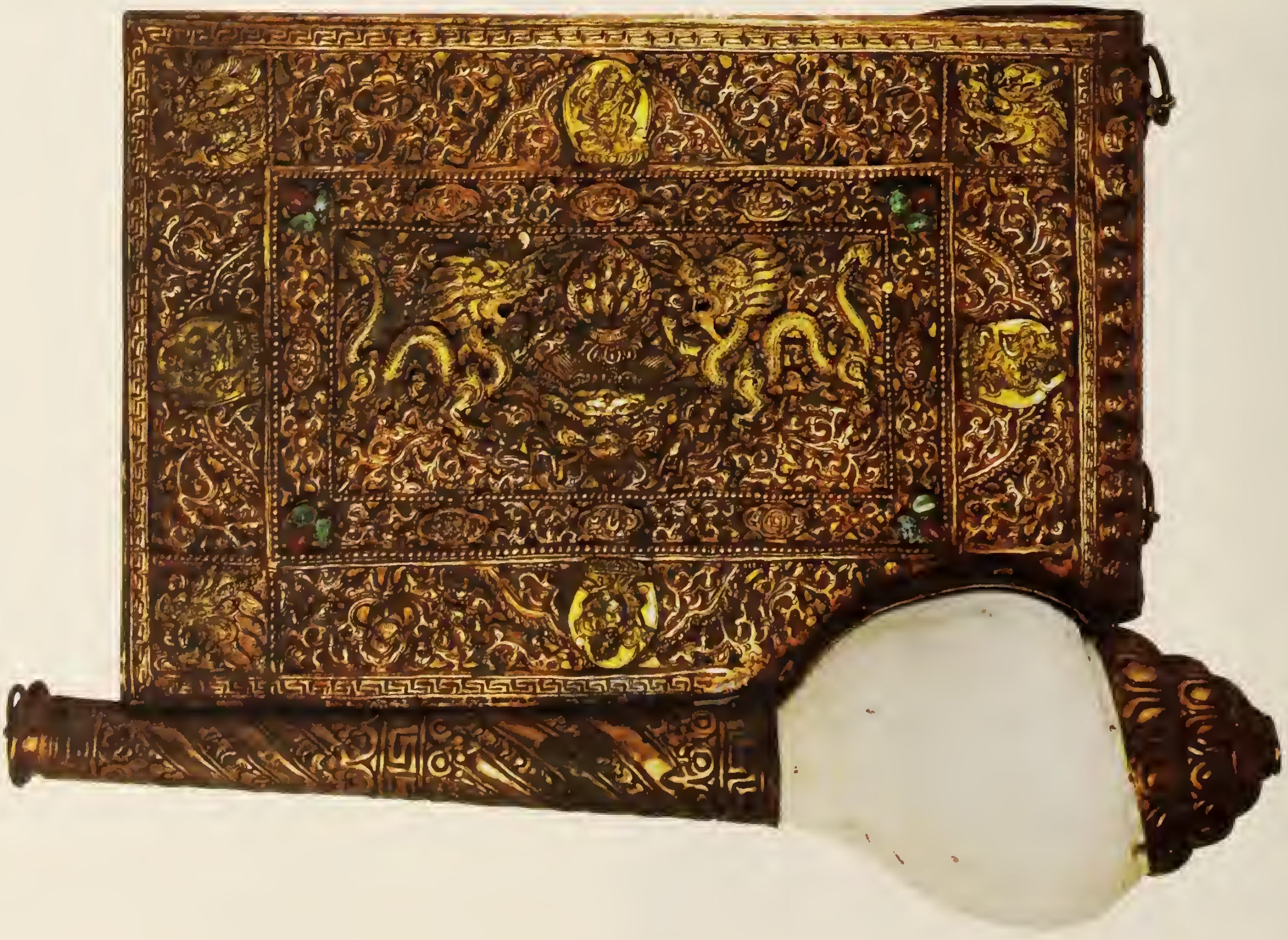
Chank Shell Trumpet



This ornate trumpet, created from a chank shell, is a treasure of both nature and culture. The shell—the white part of the trumpet—was originally part of a marine snail in the Indian Ocean. At an unknown date it was fished out of the sea and used as an item of trade, ending its journey in the mountains of Tibet. There it was transformed into a trumpet and used in religious rituals of Lamaism, a form of Buddhism that, like the shell, came to Tibet by way of India. Also like the shell, Lamaism was influenced by indigenous Tibetan traditions.

Chanks are one of the eight auspicious symbols of Buddhism. This example is particularly prized, as it spirals to the left, in the opposite direction of most other such shells. The attachments to the shell are bronze and copper with inlay of turquoise and coral. The detailed, ornate carvings, against which the simplicity of the shell stands out in high relief, represent dragons, deities, and other ritual emblems. The metal box was added to give the instrument a deeper and more resonant sound than other chank shell trumpets.

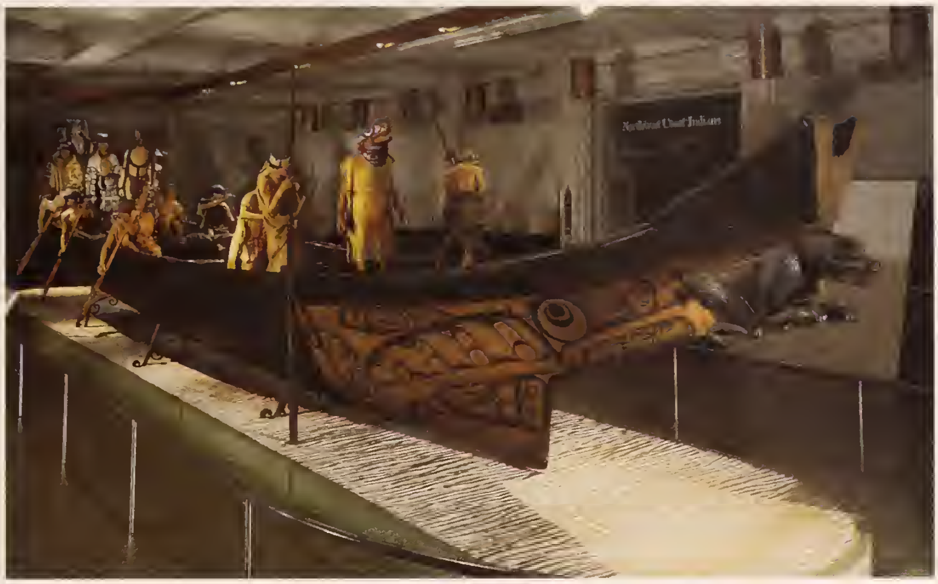
In its journey from the sea to the mountains, from natural to cultural wonder, the chank shell trumpet represents the interaction of humankind with nature that marks so many exhibits at the American Museum of Natural History.



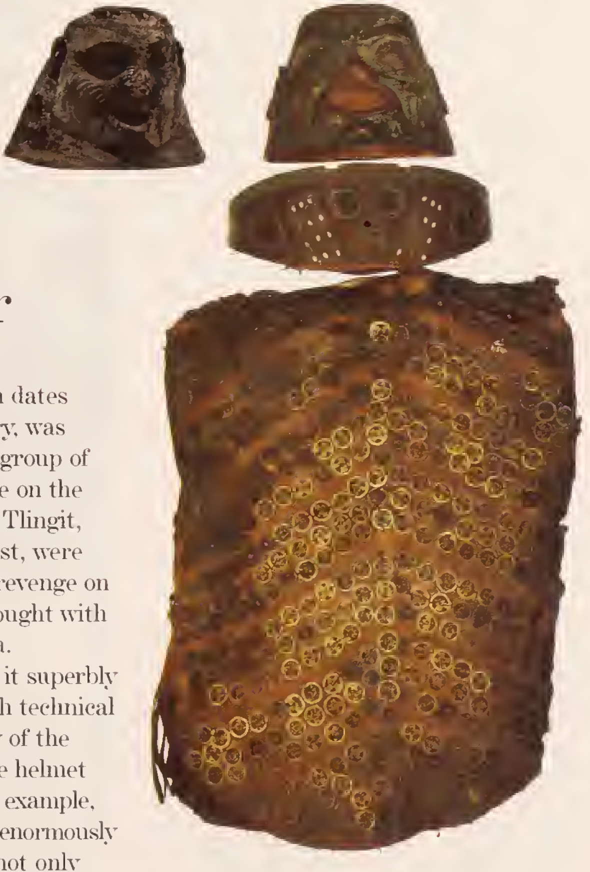
10.
Haida Canoe

This canoe is an outstanding example of the exceptional canoe-building skills of the Indians of the Pacific Northwest. The sixty-three-foot-long, seaworthy canoe was built in 1878 by the Haida, who are native to the Queen Charlotte Islands off British Columbia. Canoes were an essential part of life for the Indians of this area, and were used for traveling to ceremonies, for trade, and for war. In this display, created in 1910 by George T. Emmons, who explored the Northwest Coast for the Museum, the Indians are depicted arriving at a potlatch—a grand ceremonial feast. The two men with long poles at the front, as well as the paddlers on the sides, are captured slaves.

The Haida Canoe was carved from a single piece of wood, the trunk of a large cedar tree. Although the trunk was only eight feet in diameter, the shipwrights softened it with boiling water and widened it to make the canoe eight-and one-half feet wide. The front of the canoe is decorated with a carving of a wolf and a painting of a killer whale. The carved decoration is more typical of the Bella Bella Indians than the Haida, and implies that the canoe was sold to a Bella Bella chief, who added his own embellishments. No matter who is responsible for its individual components, the Haida Canoe is a masterpiece of artistry and virtuoso building, and remains one of the Museum's most popular exhibits.



11.
Tlingit Armor



This selection of armor, which dates from the late nineteenth century, was made by the Tlingit Indians, a group of American Indian tribes who live on the coast of southeast Alaska. The Tlingit, like most tribes of the Northwest, were warlike. They raided and took revenge on neighboring tribes and, later, fought with early Russian settlers in Alaska.

The armor seen here, all of it superbly made, is a testament to the high technical standards and brilliant artistry of the Northwest Indian cultures. The helmet defined by a grimacing face, for example, is both expertly constructed and enormously expressive. The body armor is not only beautifully crafted but also illuminates a fascinating convergence of three cultures. It is covered with Chinese coins, which the Tlingit received in trade with Boston sea merchants who traveled a triangular trade route. Exchanging metal tools and other goods with the Tlingit in return for sea-otter pelts, the merchants then took the pelts to China, where they were exchanged for spices; the spices, in turn, were brought back to Boston, where the process began anew. The Tlingit were known among the Boston merchants as tough negotiators and traders; apparently, a Tlingit warrior admired these coins and recognized a good use for them. This armor, brought to the Museum by the great anthropologist Franz Boas, thus tells us something about the specific culture that produced it, as well as about the broader context in which it was created.

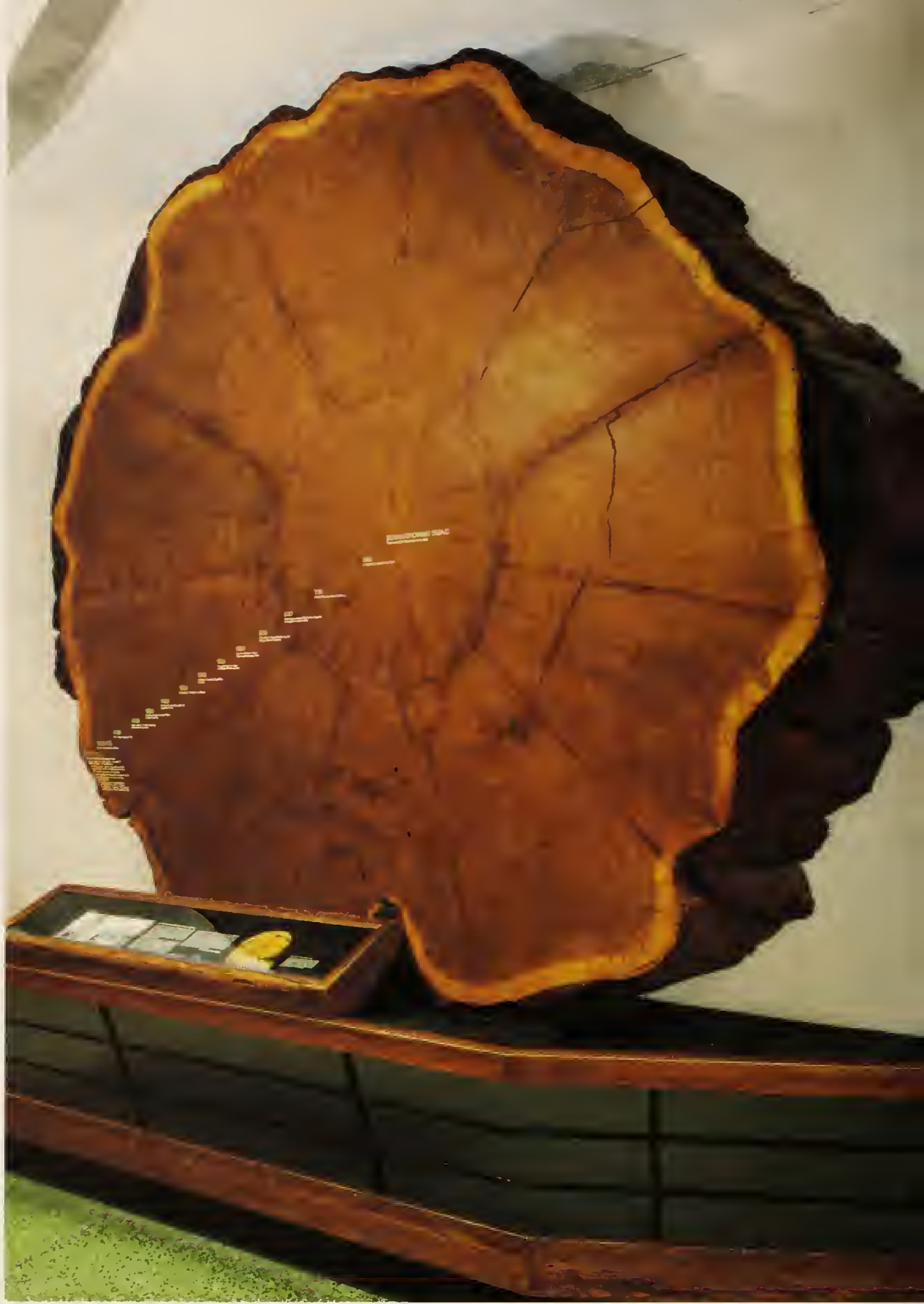
12.

Giant Sequoia

This is a piece of one of the largest and longest-lived life forms on Earth. The giant sequoia tree from which this slice comes survived for over 1,300 years in what is now called the Sierra Nevada range of California. The full height of the tree, which was felled by lumberjacks in 1891, exceeded 300 feet. There are even bigger giant sequoias.

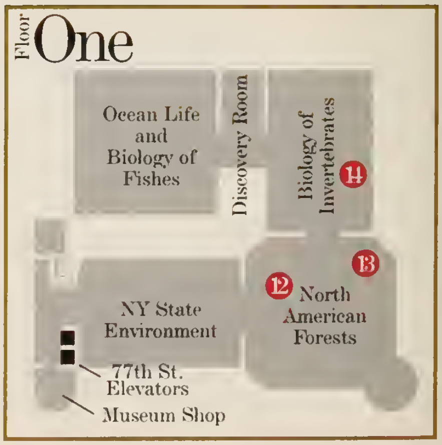
Forests of many kinds of sequoias were widespread in the age of dinosaurs and continued to flourish for tens of millions of years thereafter. Then mountains like the Sierra Nevada rose, and the climate in most regions beyond became too cold for sequoias. By the onset of the Ice Ages, approximately one million years ago, they had vanished from most of the Northern Hemisphere. Today the only sequoia species left are the giant sequoia, of the Sierra Nevada in central California, and the very different coast redwood, along the coast of northern California and southern Oregon. Together with a few Asian relatives and the bald cypresses of North America, they are all that remain of the once much larger and more widespread redwood family.

Several factors contribute to the long life of the giant sequoia. Its unusually thick bark is fire-resistant; the trees actually depend on fires to thin out the firs and pines that would otherwise eventually take over. Giant sequoia seeds do well in a fire-mineralized soil and are shed in greatest numbers after a fire. The tree also contains a natural wood preservative, and is very resistant to disease. No one knows how long a sequoia can live. Many trees in Sequoia National Park in California are over 3,000 years old, still growing vigorously and producing abundant seeds every year.

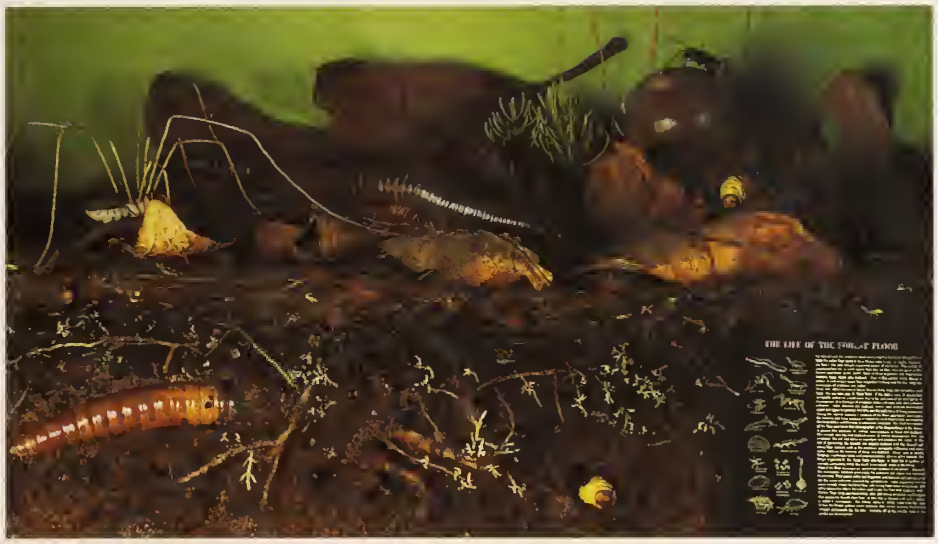


This sequoia slice offers a lesson in how to discover the age of a tree. Around the central point of the slice are concentric rings, some of which are invisible to the naked eye. Each of these represents one year's growth. To make the immense age of the tree more vivid, we have placed marks on some of the growth rings, each corresponding to a significant historical event. Note that even 1,000 years ago, represented by the fourth mark from the center, this was a very big tree.

These rare and remarkable trees are a natural treasure. Most of them are in Sequoia and Kings Canyon National Parks or under other government protection. Today, it is illegal to cut them down.



13.
Forest Floor Diorama



The Forest Floor Diorama represents a cross-section of forest soil, enlarged to twenty-four times its actual size. This scene is indeed somewhat fantastic, yet it serves as an informative example of decomposition, the process by which natural debris is broken down into new substances, which exist in the soil as nutrients. The debris in this section is mostly from an oak tree. While bacteria and fungi help break this material down, so do some of the creatures re-created in the diorama. The millipede, for example, eats algae and leaves, and its waste becomes part of the soil. The acorn in the top right of the case has already been partially decomposed. A weevil bored into it and laid an egg inside; the larva then hatched, fed on the interior of the acorn, and left through the hole drilled by the adult.

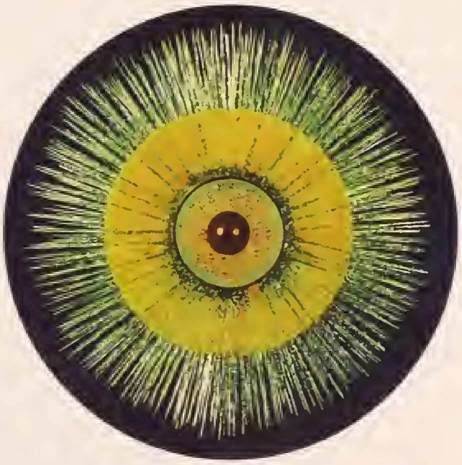
To create the Forest Floor Diorama Museum staff artists studied each specimen they were to reproduce under a microscope. They then made models of the specimens in clay and wax. To produce the acorn weevil larva, a molded wax model was coated with shellac, petroleum jelly, and finally a latex-like liquid. The plaster and papier-mâché millipede was coated with shoe polish to achieve the proper texture, whereas the oak leaf consists of an iron-and-wire framework that was covered with cotton and wax. The body of the daddy longlegs is built on a frame of balsa wood, which is light enough to be supported by the thin wire legs.

By uniting craft and science, the Forest Floor Diorama is a superb example of exhibition design that combines artistry with education.

14.
Glass Protozoa

Protozoa are microscopically small, single-celled organisms, the most broadly known of which are probably amoebae and paramecia. While most protozoa are aquatic, living in fresh or salt water, some live in soil. Despite the fact that they consist of only one cell, protozoa are varied in form and physiology, and carry out the metabolic functions of higher animals, such as digestion, respiration, and coordination of movement.

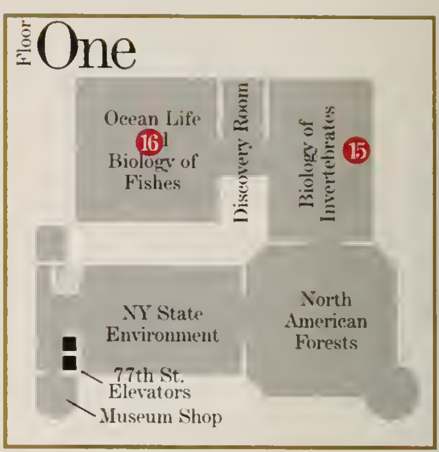
The complexity of these organisms is made visible to the naked eye in these glass models. Shown here is a cutaway view of a protozoan known as *Actissa princeps*, a member of the group known as radiolarians. *Actissa princeps* is found at or near the surface of the ocean. At its center is a pink sphere that is covered with pearl-like nodules. This is surrounded by a solid yellow structure. The blue spikes that radiate from the center of the protozoan hold tiny growths of algae. So positioned, the algae are able to capture energy from sunlight for photosynthesis, and, in turn, to provide food for the host radiolarian.



These models were created by Herman O. Mueller, who was a preparator at the Museum. Mueller, whose family had been glass blowers in Germany for several generations, spent years working on the models, which he completed in 1943. Using his enormous skill to reveal what we cannot observe on our own, he enabled us all to see how even the simplest forms in nature are often quite complex and very beautiful.

15.

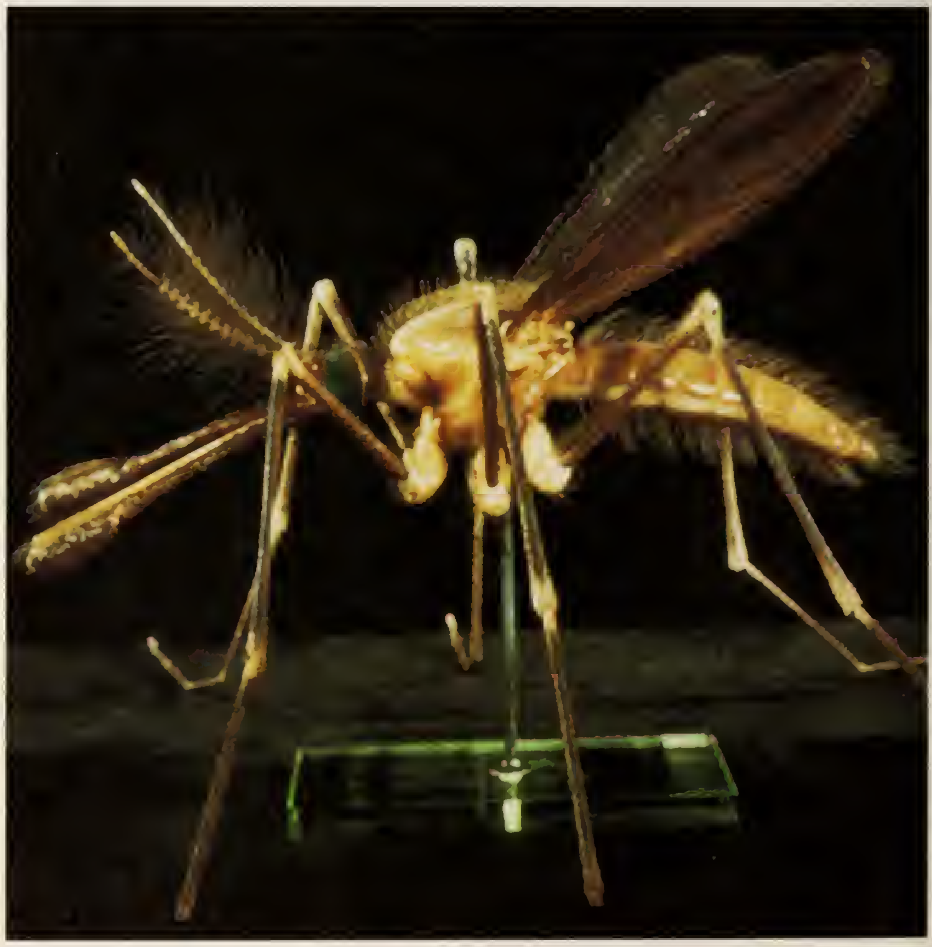
Giant Mosquito Model

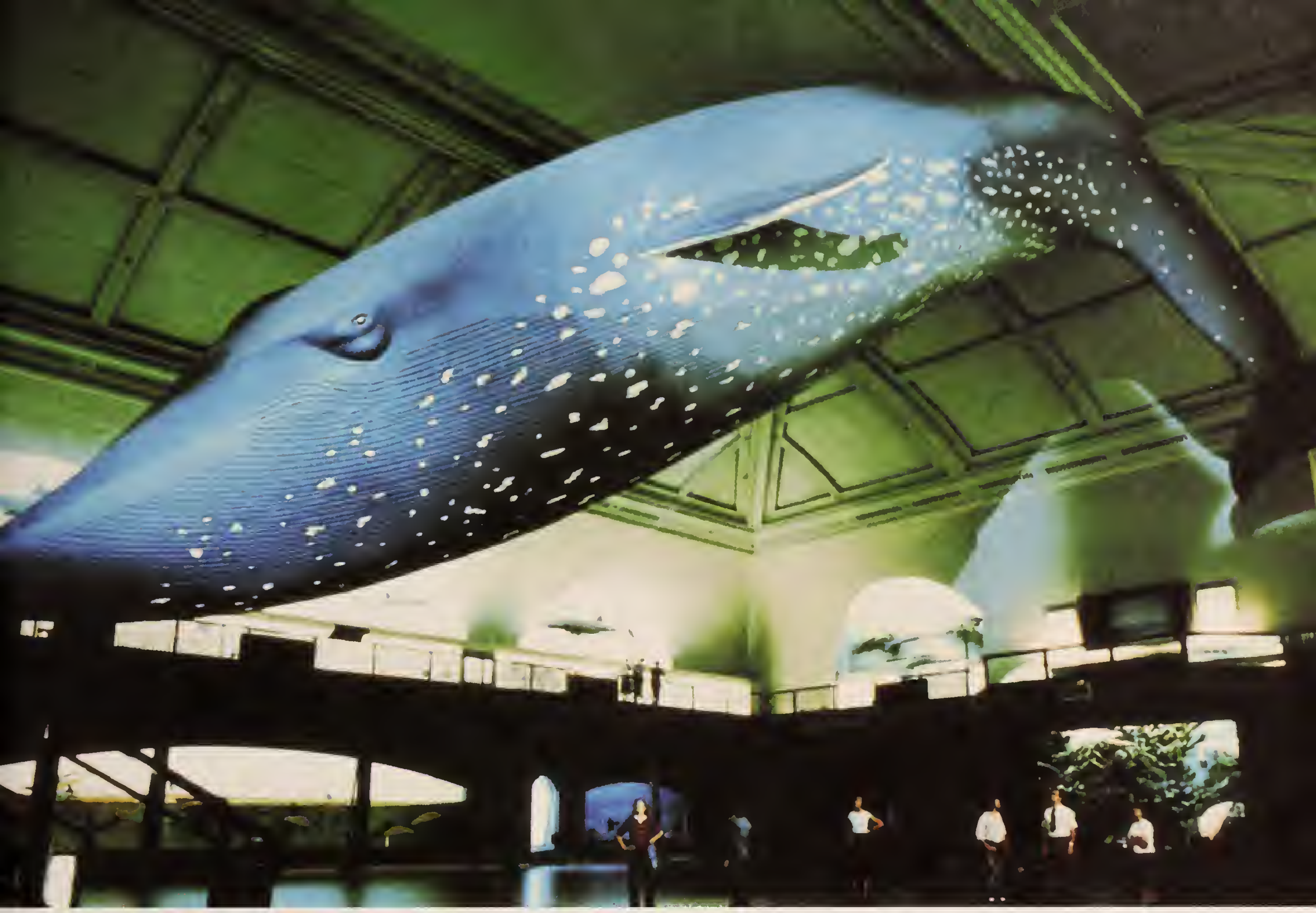


The American Museum of Natural History's Giant Mosquito Model played an active role in public health education around the turn of the century. This wax model of an *Anopheles* mosquito (the hairs are made of brass wire) was created to inform the public in the New York City area about a dangerous outbreak of malaria, which is transmitted by mosquitos, and to make sure that the threat was taken seriously. When the mosquito is magnified to seventy-five times life-size, its potential for spreading disease becomes quite vivid—somewhat horrifyingly so.

The mosquito model, which was first on display at the Museum in 1917–18, is scientifically correct. The spotting on the wings and the long, tube-like mouth parts are characteristics of the *Anopheles* mosquito, one of several species that carry malaria parasites. While only female insects bite, and therefore transmit disease to humans, this model is a male *Anopheles*.

While malaria is no longer a threat in this region, the Museum continues to sustain its commitment to public education, embodied here in the Giant Mosquito Model.





16.
Blue Whale

The Museum's Blue Whale is a treasure by virtue of its enormous and lasting popularity. Bathed in the ambient blue light of the Hall of Ocean Life, this ninety-four-foot model is a powerful evocation of the mysteries of the seas and of the mystique held by the whale in so many cultures.

This is a fiberglass replica of a female blue whale captured in 1925 off South Georgia Island, east of Tierra del Fuego, an archipelago at the southern tip of South America. Growing up to 120 feet and sometimes weighing more than 100 tons, blue whales are the largest animals alive today. Yet their enormous mass and power are coupled with grace. Blue whales, which like other whales have good vision and excellent hearing, maintain their weight on a diet of krill, small, shrimp-like animals. They process thousands of gallons of water every day, using their baleen, long bristle-like plates that hang from their upper jaws, to filter out the krill.

During the late nineteenth and early twentieth centuries the blue whale was hunted nearly to extinction by whalers in search of its blubber. The 1960s saw a worldwide ban on hunting of the blue whale, and its population is now estimated to be 10 to 12 thousand. We do not know if this is a large enough number for the whale's survival. The Museum's Blue Whale serves as an important reminder of our responsibility to our environment on land and in the sea.

17.
Coelacanth

Coelacanths are an ancient lineage of fish-like vertebrates that first appeared some 350 million years ago, about the time the first creatures emerged from sea to land. The fossil on view at the Museum, from the Santana Formation, in Brazil (treasure number 23), is more than 100 million years old.

In terms of evolution, these ancient "fishes" are more closely related to land animals than to fish. Note the specimen's paired fins. They are lobe-like and actually have jointed bones, like arms and legs.

These creatures present a fascinating story of the ways in which our knowledge of the world is sometimes increased by happenstance. Until 1938 all coelacanths were considered to be extinct; we thought the last coelacanth lived approximately 70 million years ago. In December of 1938, however, fishermen off the eastern coast of South Africa caught a living coelacanth, like the one pictured here. It was so similar to its ancient relatives that it was called a "living fossil." For years after this serendipitous discovery, scientists searched for another living coelacanth. Finally, off the Comoro Islands, north of Madagascar, they met with success. Since then, more than 200 specimens have been found, all in the same region.

In 1975 a scientist in the Museum's Department of Ichthyology helped dissect a coelacanth. Inside were five fully formed babies, showing us that coelacanth eggs hatch internally. Because of this method of reproduction, the coelacanth cannot produce many eggs, and is able to brood only a few young. It is therefore extremely rare and vulnerable to overfishing. Conservation measures are now in place so that the coelacanth can remain a living link to the ancient past.

18.
Evolutionary Tree of Fishes

Like the display on the evolution of horses (treasure number 47), the Evolutionary Tree of Fishes provides a window onto *cladistics*, the method of studying evolution that is used, and was partly developed, by scientists at the American Museum of Natural History.

Cladistics is a way of grouping organisms according to shared traits. This long case, which runs the length of the wall, arranges fishes according to such shared characteristics. The rays, for example, all have flattened bodies, enlarged pectoral fins, eyes on top of their heads, and gill openings on the lower sides of their heads. These features are believed to have been inherited from a common ancestor. They therefore indicate that rays are more closely related to each other than to any other living things. While flounders also have flat bodies and eyes on top of their heads, they do not have enlarged pectoral fins or gill openings on the lower sides of their heads. Thus as a group they have an ancestry distinct from that of rays. Some of the traits that distinguish evolutionary groups are not as easily observed as these, and have been discovered by studying DNA.

The chart on the floor of this display demonstrates that a graphic representation of the relationships revealed by examining shared traits looks like a branching tree rather than the straight line that many have envisioned evolution to resemble.

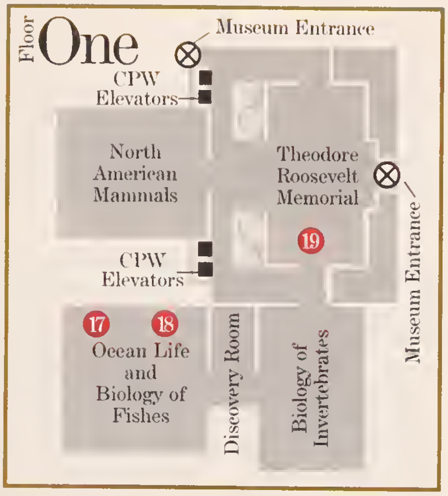
19.

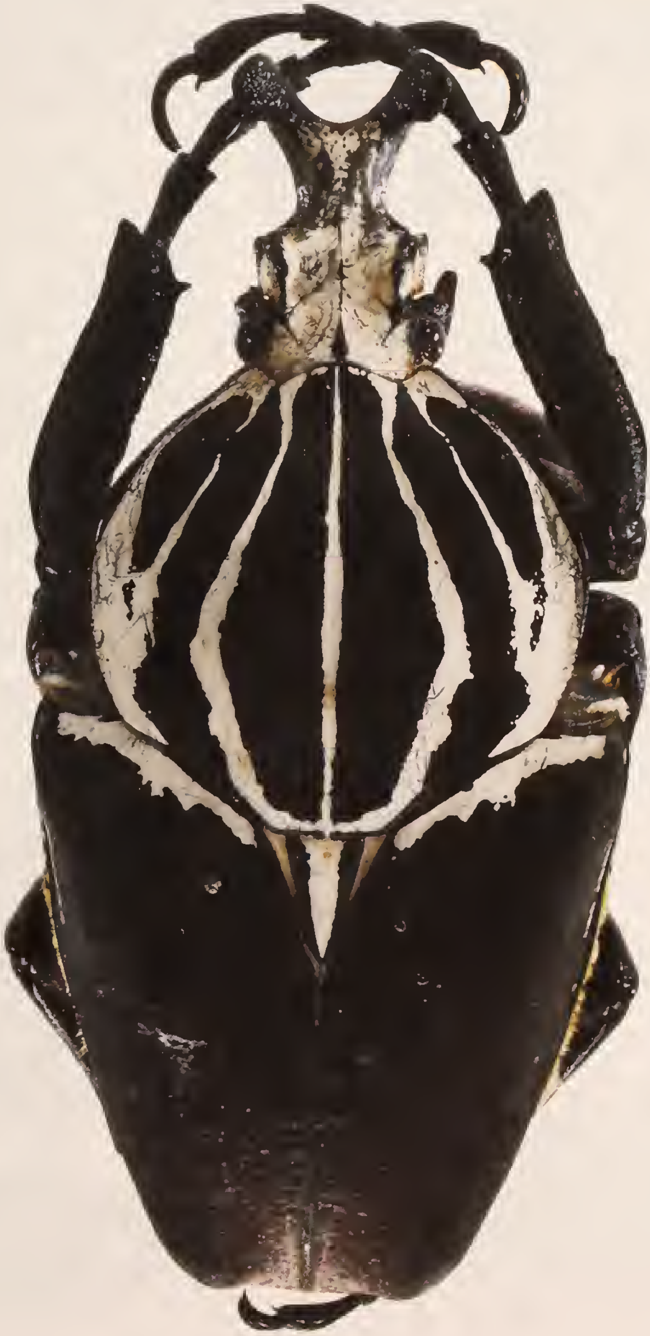
Insect Collection

There are more species of insects than of any other group of organisms in the world. Indeed, insects form such an enormous portion of the animal kingdom that a primary task of an entomologist is simply to find out what insects exist, and to describe and classify them, both individually and in relationship to each other. The insect collection at the American Museum of Natural History is among the largest in the world, comprising some 17 million specimens, which represent some 300 thousand species. This collection is the main tool used by entomologists at the Museum to examine and classify the world's insects.

The specimens in this display range from one of the smallest insects, a species of parasitic wasp that lays its eggs in the eggs of other insects and is barely visible without a magnifying glass, to one of the most massive, pictured here, a goliath beetle from Africa. This insect attains a length of three inches and feeds on decaying wood as a larva and on foliage as an adult. In the exhibit, a drawer filled with beetles—a group that represents nearly one-sixth of all organisms on Earth—exemplifies how insects are stored at the Museum, where there are about 40 thousand such drawers.

This huge collection, to which tens of thousands of specimens are added every year, contains more specimens than all of the Museum's other permanent collections put together. Yet it is largely invisible to visitors, housed out of public view, where the scientific work of the Museum is carried out. There, entomologists are studying insects, learning about the role they play in nature's balance.





20.

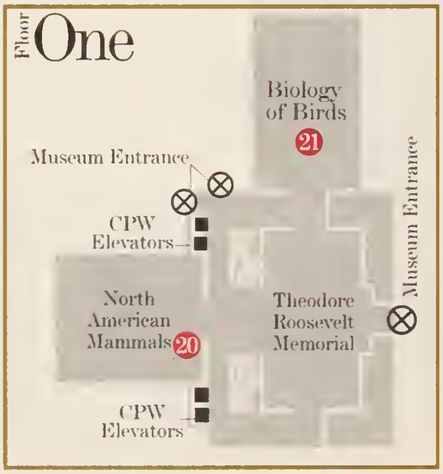
The Art of Illusion: Perry Wilson's Paintings

James Perry Wilson was a master of artful illusion, creating backgrounds for dioramas that are accurate in every detail and yet highly evocative of the intangible feel of the place they depict. Wilson, seen on the right of this photograph (standing with his back to the viewer, painting on the wall), is responsible for the painted backgrounds in many dioramas throughout this Museum.

The scene Wilson is working on in this photograph re-creates an area near the North Platte River, in Wyoming. The year is 1850, when some 60 million bison roamed the western plains from Mexico to Canada. To create this diorama, Wilson, along with a scientific specialist and another artist, went to Wyoming in 1938. There Wilson made color sketches, took stereo photographs, and collected specimens that were to go in the foreground of the scene. On his return he reproduced the scene on the curved walls of the diorama, looking through a stereo viewer and using a brush with a four-foot extension on the handle in order to achieve the proper perspective.

Perspective is one of Wilson's signature qualities. In his dioramas the real materials of the foreground, here grass and earth, merge impeccably with the painted background, uniting the two- and three-dimensional into a seamless whole.

Perry Wilson's artful re-creations set the standard for the painting of dioramas. Today, the American Museum of Natural History continues Wilson's commitment to bring the natural world to the public in a scientifically accurate and lifelike manner, thereby expanding and deepening our understanding of our world.



21.

Dodo

The Dodo is a lesson in extinction. First sighted around 1600 on Mauritius, an island in the Indian Ocean, the Dodo was extinct less than eighty years later. Thus while the skeleton on view in the Museum is real, the model is not, as there are no complete Dodo specimens. Some of the birds may have been eaten by the Dutch sailors who discovered them. However, the primary causes of their extinction were the destruction of the forest (which cut off the Dodo's food supply), and the animals that the sailors brought with them, including cats, rats, and pigs, which destroyed Dodo nests.

The Dodo's stubby wings and heavy, ungainly body tell us that the bird was flightless. Moreover, its breastbone is too small to support the huge pectoral muscles a bird this size would need to fly. Yet scientists believe that the Dodo evolved from a bird capable of flight into a flightless one. When an ancestor of the Dodo landed on Mauritius, it found a habitat with plenty of food and no predators. It therefore did not need to fly, and, as flying takes a great deal of energy, it was more efficient for the bird to remain on the ground. Eventually, the flightless Dodo evolved.

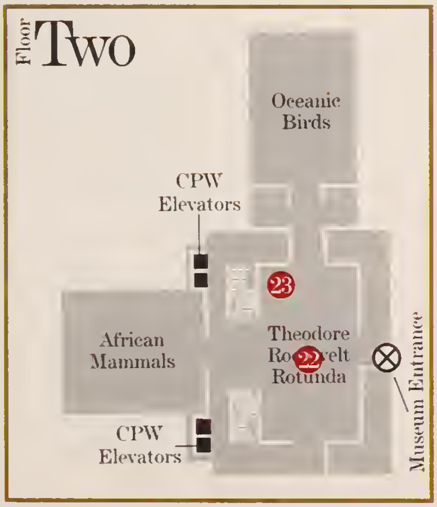
Scientists at the American Museum of Natural History and other institutions around the world continue to study and document the impact of human activities on the environment. It is hoped that the lesson of the Dodo can help prevent similar extinctions, and aid us in preserving the diversity of life on Earth.

22.

Barosaurus

This display, like the Blue Whale (treasure number 16), is one of the most popular and dramatic exhibits in the Museum. In this re-creation of a specific moment, a *Barosaurus*, an enormous plant-eating dinosaur that lived 140 million years ago, rears up to protect its young from a fierce, attacking *Allosaurus*. It is a scene that evokes the primal drama of predator and prey. Yet for all its realism, this exhibit—for many visitors the first one seen on entering the Museum—is a product of the human imagination. While scientists think that such a scene *might* have happened, we do not in fact know for certain whether a *Barosaurus* could actually rise up like this, or even that an *Allosaurus* would have attacked a *Barosaurus*.

Barosaurus skeletons—among the rarest dinosaur fossils—have been found in both the western United States and in Africa. This is the only *Barosaurus* on view anywhere in the world, and the only dinosaur mount with a freestanding animal rearing up. These dinosaur skeletons are composed of casts made from real bones, which are too heavy to support in this fashion. Some of the actual *Barosaurus* vertebrae are in the case between this display and the Museum entrance. Portions of an unassembled *Barosaurus* skeleton will also be on view in the new dinosaur halls when they open in May 1995.



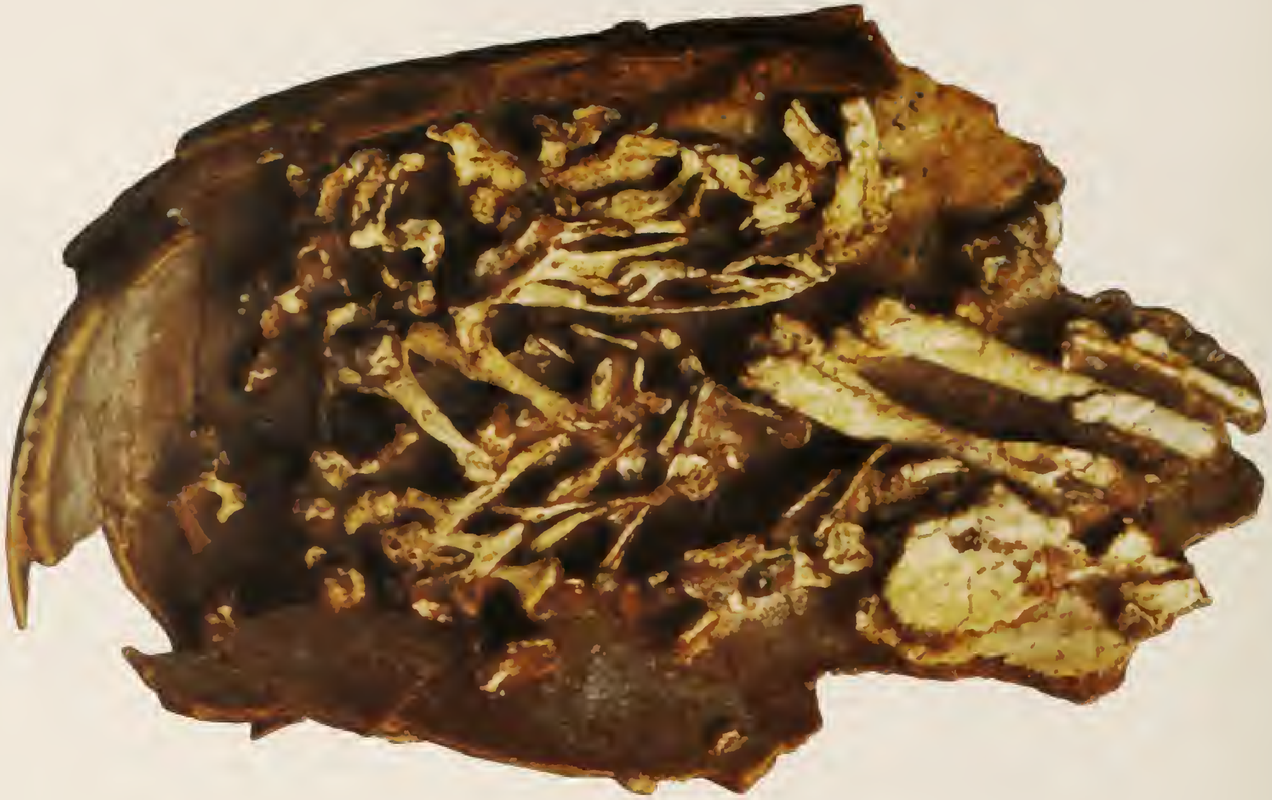
23.

Brazilian Fossil Fishes

The Santana Formation, in northeast Brazil, is one of the richest fossil deposits in the world. All of the fossil fishes in this display came from the Santana Formation, where they lived 110 million years ago in a shallow inland sea. At that time Africa and South America had only just drifted apart, and were still located close to each other.

These fossils were actually preserved with their stomach contents intact, enabling us to see exactly what the fishes last ate. Such details offer scientists an exceedingly rare opportunity to reconstruct the food chain of this community of extinct fishes. We know what preyed on what, and have thus learned about the ecology of the community, including its population structure and dynamics.

These Brazilian fossil fishes bring the ancient past vividly to life. Scientists from the American Museum of Natural History, in collaboration with colleagues in Brazil, continue to take advantage of the virtually unparalleled opportunities offered by the Santana Formation to study the interrelationships of extinct species.

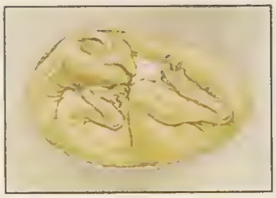


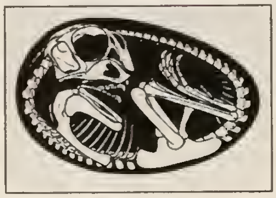
24.
Dinosaur Embryo

Since 1990 scientists from the American Museum of Natural History and the Mongolian Academy of Sciences have been collaborating on an ongoing expedition to Mongolia, one of the world's richest sites of excellently preserved dinosaur fossils. In 1993 at a site called Ukhaa Tolgod ("brown hills"), members of the expedition discovered one of the most important finds that Mongolia has yielded—an egg containing the fossilized embryo of a theropod dinosaur, thought to be 70 to 80 million years old.

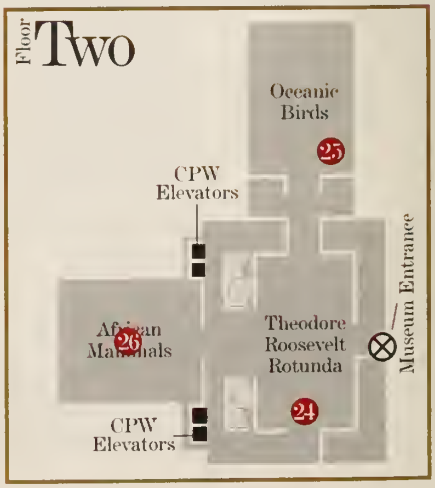
Dinosaur eggs were found in the Gobi Desert by the Museum's Central Asiatic Expedition of the 1920s, but none of them contained embryos. This is the first such complete and informative example to be discovered there, as well as the first embryo of a meat-eating dinosaur to be found anywhere in the world. Studying the fossilized embryo, scientists identified it as an unhatched oviraptorid, a dinosaur whose long neck and long hind legs resembled those of an ostrich, while its skull looked like that of a parrot.

Mysteriously, in the same weathered nest in which the oviraptorid was discovered, the scientists also found what may be two tiny *Velociraptor* skulls, from either embryos or neonates. It is not clear what *Velociraptor* were doing in an oviraptorid nest. They may have been items of prey for adult oviraptorids, or have themselves been preying on oviraptorid eggs or hatchlings. Or an adult *Velociraptor* may have had a parasitic relationship with the oviraptorids, laying its eggs in the oviraptorid nest, much as cuckoo birds today put their eggs in the nests of other birds.





Like most scientific discoveries, the Dinosaur Embryo raises as many questions as it answers. Yet it is only through such continual investigation and questioning that we are able to learn more about our world, both in the ancient past and in the present.



25.

Guano Islands Diorama

Despite the fact that the Guano Islands, located off the coast of Peru, consist of little more than barren rocks, they are teeming with birdlife. The reason for this is a sequence of natural events that originates in the Antarctic. There the Humboldt Current begins its journey northward along the west coast of South America. As the cold ocean current strikes the shelf of the coastline, there is an upwelling of nutrient-rich waters. These support an enormous population of plankton, which serves, in turn, as food for a huge population of fish. The birds—boobies, cormorants, pelicans, and terns—are attracted by the fish.

The birds that inhabit the islands have coated the rocks with their droppings, which are called *guano*. For centuries, this excretion was gathered by coastal people for use as fertilizer, at a slower rate than that at which it was produced. When guano began to be exported to the northern hemisphere, however, its harvesting soon outpaced its creation. Moreover, guano-mining practices destroyed many nests. As a result, the bird population of the Guano Islands was disastrously diminished.

With the introduction of synthetic fertilizers, the demand for guano has decreased, and the mining of it is now regulated, reducing the pressure on the bird populations and allowing them to increase their numbers.

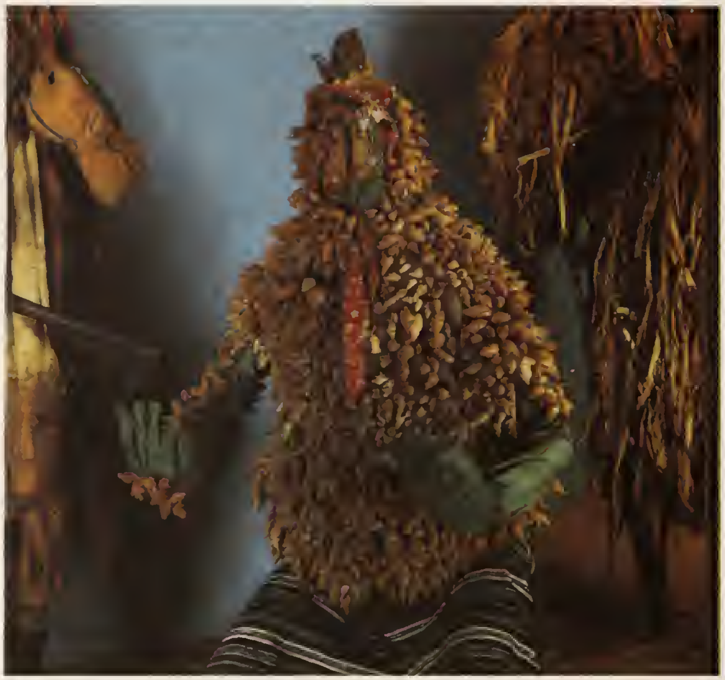
26.

Akeley Hall of African Mammals

The Akeley Hall of African Mammals is considered by many to be among the world's greatest museum displays. A monument to an area that has dramatically changed, the Hall is also a monument to Carl Akeley, the innovator who created it. Akeley was a dedicated explorer, taxidermist, sculptor, and photographer who led teams of scientists and artists on several expeditions to Africa during the first two decades of this century. There, he and his colleagues carefully studied, catalogued, and collected the plants and animals that even then were disappearing. He brought many specimens of that world back to the Museum, where he created this Hall, with its twenty-eight dioramas.

The dioramas do not simply evoke the sites that Akeley visited—they replicate specific animals in specific geographic locations at a specific time. In creating these works, Akeley forever changed the practice of taxidermy—the stuffing and mounting of the skins of animals. Until then animal skins had been stuffed with straw or wood shavings. Akeley, however, began by re-creating the animal's shape with an armature made of wood, wire, and sometimes parts of the actual skeleton. He then used clay to add on each muscle, tendon, and vein. When this work was complete, he made a cast of it, and fit the animal's skin over the cast. This meticulous attention to veracity—which was carried over to the plant forms and even to the light in the dioramas—resulted in faithful and vivid reproductions of the world that Akeley wanted to preserve.

Carl Akeley died on an African expedition in 1926, ten years before this hall was completed. He was buried in a place depicted in the Gorilla Diorama, on the slope of the volcano across the valley, on the far right of the painting. While we have learned a great deal about mammals and their world since Akeley's day, and we no longer collect animal specimens as Akeley did, his vision and his desire to preserve the world he lived in still inform much of the work done at the Museum.



27.

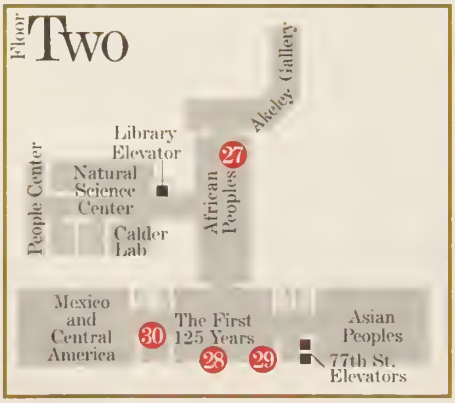
African Spirit Dancer

This figure, called Marikoto, is performing in a ceremony of the Yoruba people of Nigeria. Dressed in a costume made of real snail shells, with a carved wooden snail on top of his head, the figure may represent an ancestor appearing as a snail.

The Marikoto masquerader plays a part in the highly complex Yoruba Egungun cult. Anthropologists once thought that Marikoto represented an ancestor from the world of the dead who came back to settle problems, to bless crops, and to confer general prosperity. We now see, however, that this interpretation was simplistic. We have learned, for example, that the Egungun cult takes on a variety of forms and that not all Egungun figures have spiritual significance. Some of these figures are entertainers, perhaps providing comic relief during serious ceremonies. Marikoto is such a figure. He is a trickster who delights observers by mimicking people in the audience, and by magically appearing and disappearing. While such tricksters do not always appear as snails, they do often dress as animals.

Marikoto's costume exemplifies the ways in which African art, like that in many parts of the world, is created not in isolation from society but as an integral part of everyday life. Made for a specific purpose, this fantastic costume plays a critical role in the life of the culture in which it was produced.

The Yoruba people now constitute more than twenty percent of Nigeria's population; their religion has spread to other parts of Africa as well as to Haiti, Cuba, Brazil, and the United States. The development of our understanding of Marikoto illustrates the ways in which, with careful observation, and without preconceptions and judgements, we can more fully learn about other cultures.



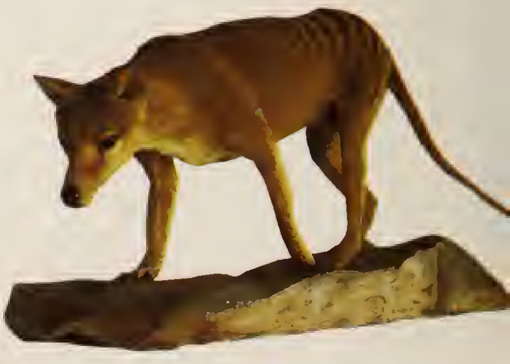
28.

Tasmanian Wolf

The Tasmanian Wolf is believed to have been extinct for nearly sixty-five years. Despite its appearance and its popular name, this animal was not in fact a species of wolf, nor was it a dog, which it also resembled. It was actually a marsupial—the largest carnivorous marsupial in recent times—and was closely related to the kangaroo and the wombat. (Its pouch is not visible in this mount.) Thus the Tasmanian Wolf's Latin name, ***Thylacinus cynocephalus***, meaning "pouched dog with wolf head," reflects the animal's true nature as well as its similarity to the dog and the wolf.

The Tasmanian Wolf's resemblance to unrelated species is a result of what scientists call *convergent evolution*, in which similar features develop separately in different species. The Tasmanian Wolf evolved into a form comparable to members of the dog family because it filled much the same ecological niche in Australia as true dogs do in their environments.

The extinction of the Tasmanian Wolf is attributable solely to activities of human beings. In the nineteenth century, when Tasmania encouraged agriculture, the Tasmanian Wolf was considered a threat to livestock, and bounty hunters were paid twenty-five cents per scalp as part of a concerted, and successful, effort to eliminate the animal. It was soon hunted to extinction. Today, in the hopes that the Tasmanian Wolf is not truly extinct, the Australian Conservation Foundation offers $100 just for a sighting of the animal's tracks. So far, there has been none.



29.

Molecular Biology Laboratory

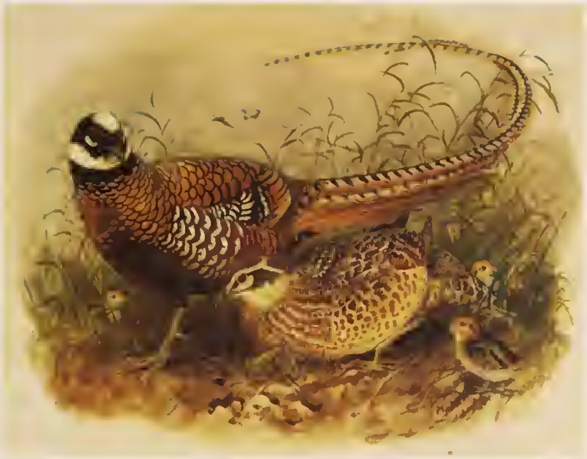
This photograph represents the work done in the American Museum of Natural History's Molecular Biology Laboratory. Here researchers use highly sophisticated technology to analyze the DNA sequences of living and extinct animals, helping to answer some of the most puzzling questions about evolutionary history.

Traditionally, patterns of evolution and the relationships among organisms have been understood through the study of the physical structures of those organisms, their skeletons, scales, feathers, and so on. In the Molecular Biology Laboratory, which opened in 1990, scientists are able to look beyond anatomy to genetic makeup. The work begins when an organism's DNA is extracted and then sequenced. Scientists analyze the sequence with a powerful supercomputer capable of completing in hours calculations that would take months with a standard computer. When the information revealed through these efforts is added to that yielded by the study of anatomical features, a much fuller picture emerges, one that augments and in some cases even alters our concepts of evolutionary history.

The colorful chart on display at the Museum shows the results of putting strands of DNA through a DNA sequencer. Each color represents a different letter in the DNA alphabet; the combination and sequence of those letters constitutes the genetic makeup of the organism, in this case a cockroach.

Also on view is a photograph of a piece of amber—fossilized tree sap—with an insect inside. This is a termite, trapped inside the amber at least 25 million years ago. In 1992 scientists in the Laboratory extracted and sequenced DNA from another specimen of this species of termite, also trapped in amber, and discovered data that gave important new insights into insect evolutionary relationships and history.

The Molecular Biology Laboratory is a place where many of the Museum's varied scientific departments come together to do interdisciplinary research. The work performed in the Laboratory may well provide us with insights as dramatic as those that led to the early understanding of the forces of evolution.



30.

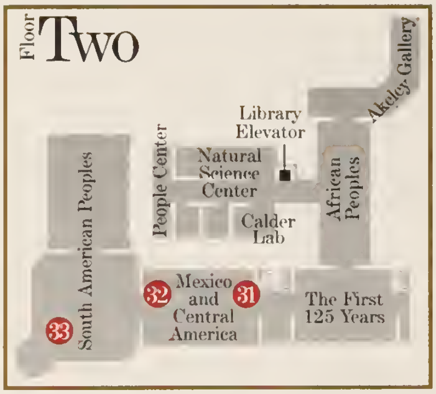
Watercolors by Joseph Wolf

Many visitors to the American Museum of Natural History are unaware of the Museum's extensive art collection, comprising more than 1,500 original works by artists ranging from John James Audubon to Andy Warhol and including 109 watercolors by German-born artist Joseph Wolf.

Wolf created these watercolors in the 1870s on commission by Daniel Giraud Elliot, one of the Museum's early scientific advisors. Elliot was producing what was to become a well-known series of publications on birds and mammals. For these he demanded total accuracy from the artists he commissioned, as the books were to be used for scientific reference. Wolf's works are still considered to be among the finest studies of birds ever created.

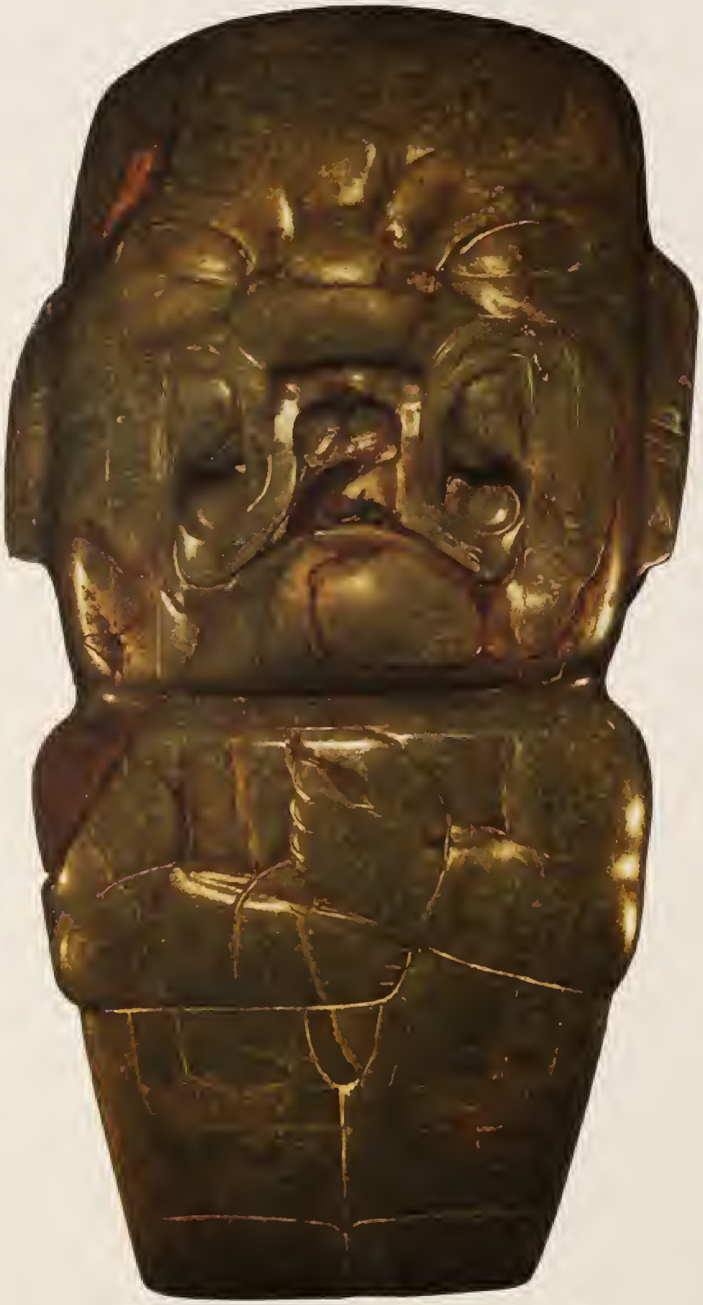
On view at the Museum is a book open to a page with a hand-colored lithograph of an Elliot's Bird of Paradise, a hybrid bird of paradise named after Daniel Giraud Elliot. There we see how intensely lifelike Wolf's birds are, even in reproduction. The other picture, shown here, is an original watercolor created for another book, depicting Reeves's Pheasants. As with the picture of the bird of paradise, this depiction is amazingly vivid, not only illustrating the precise markings of the birds and the details of their habitat, but also conveying a sense of movement. Note as well how vibrant the colors are, even some 120 years after the watercolors were created.

This book and the original watercolors prepared for it are among the treasures of the Museum's library, the largest natural-history library in the Western Hemisphere. Like many of the Museum's exhibitions, Wolf's pictures are able to communicate effectively to viewers by uniting science with art.



31.

Kunz Axe



Between 1,200 and 400 B.C., people in many parts of Mesoamerica erected monumental constructions of earth and stone, and created artifacts of stunning complexity. The Olmec, who lived on the Mexican Gulf Coast, were such a people. Thanks to the Olmec's extensive trade with peoples in others areas, there are widespread similarities in styles of stone carving and ceramic decoration during the first millennium B.C.

This 3,000-year-old jade sculpture, called the Kunz Axe after a former owner, is part human, part beast. It was reportedly found in the hilly region of Oaxaca, where by 1,200 B.C. people were constructing monumental buildings, producing sophisticated art, and trading with the Olmec. The mouth in the shape of a jaguar and the almond-shaped eyes placed on top of the head lead us to surmise that this figure may represent a chief or a shaman who has transformed himself into a jaguar—the most powerful hunter in the forests of Mexico and Central America—to partake of its power. With its economical, taut carving, in which not a single line or mark is wasted, the brilliant sculpture is among the finest jade carvings in history. It came to the Museum in 1891.

Jade is an exceptionally hard material, and it took great skill to carve it with the stone tools used by early artists. To create the basic shape of a sculpture such as this one, the jade was probably chipped and sawed with flakes of stone or hard fragments of pottery. It was then scored, perhaps with a piece of bamboo, to create the intricate features. A view of this sculpture from the side shows the bottom to be tapered to a point, like an axe blade. Yet the Kunz Axe was not an ordinary tool, but most likely a ceremonial object.

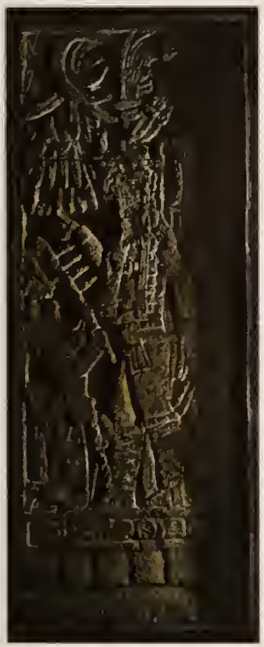
Although this extraordinary carving was produced by a culture vastly different from our own, its enormous power and energy speak to us still.

32.

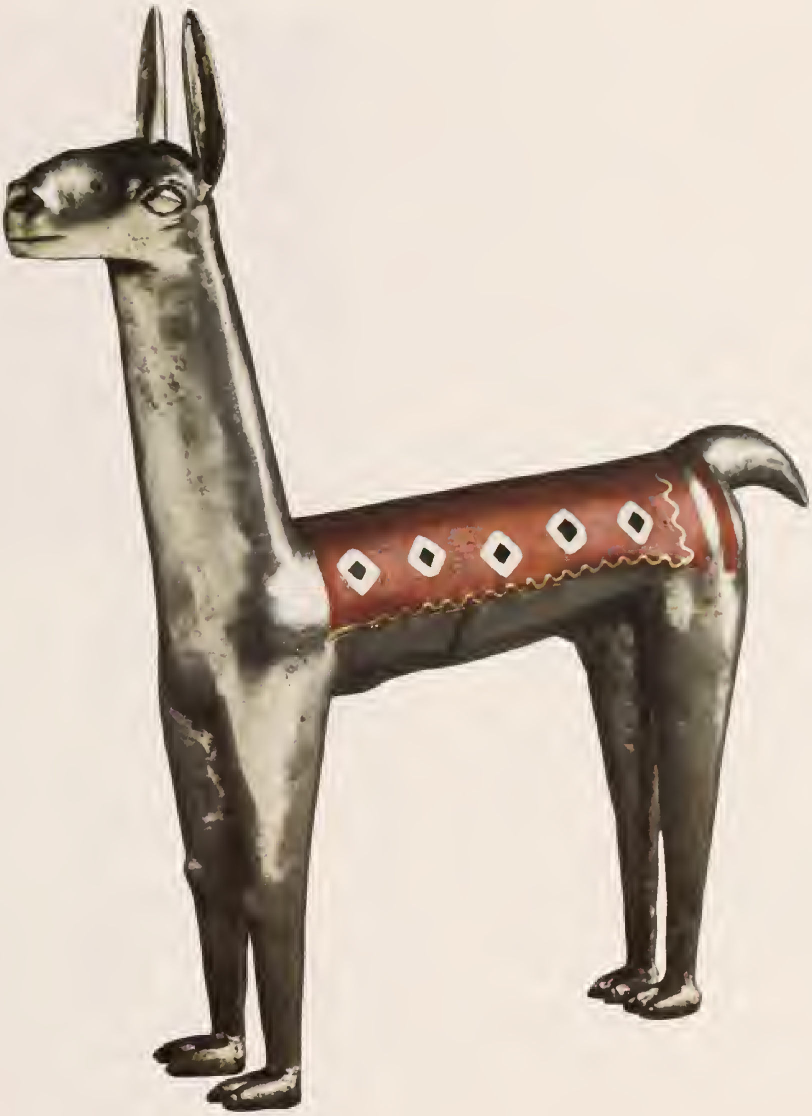
Mayan Stone Carving

The Mayan culture, which existed as early as 1,500 B.C., did not consist of a single empire, as was once believed, but rather was a collection of independent city-states that alternately made war and traded with one another. These two large, sculpted stones come from the Mayan city-state of Kabah, in what is now the Mexican state of Yucatán, where they once framed a temple door.

Carved in the ninth century, the stones depict scenes of conquest. In the one shown here, for example, are two figures. The taller, standing figure is a warrior-priest, who wears a helmet crowned with quetzal feathers that trail to the ground. (Also visible is the support necessary for such a heavy helmet.) The priest towers over a kneeling captive, who, bound with rope, surrenders his war club.



Kabah was abandoned not long after these stones were carved. It lay virtually untouched, overrun by jungle growth, until it was discovered a thousand years later by the explorer John Lloyd Stephens. During his remarkable expeditions to Mexico and Central America, in 1839–40 and 1841, Stephens uncovered the Mayan civilization, which until then had been virtually unknown. These carvings, acquired by the Museum in 1919, with their symbols and their dramatic figures, are a vivid expression of the beliefs and sensibilities of that ancient culture.



33.

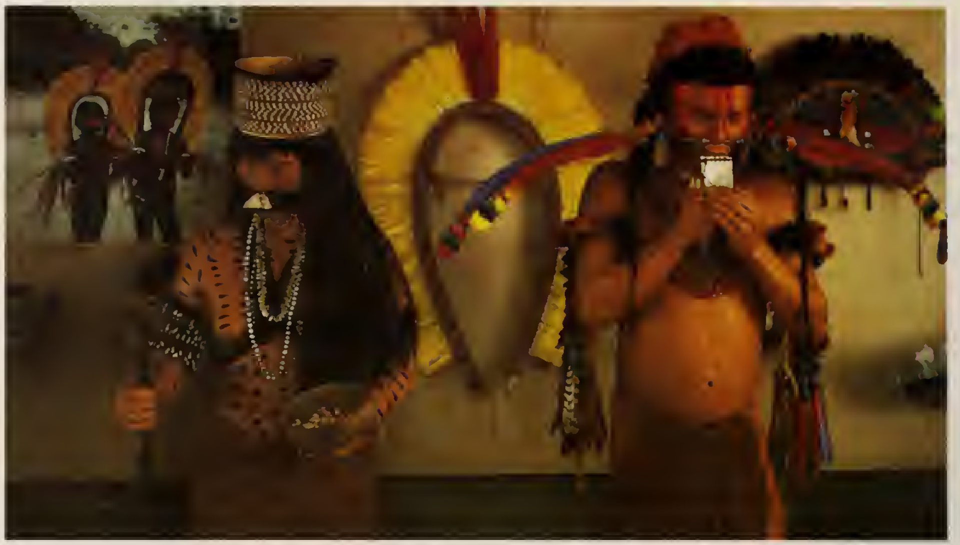
Royal Llama of the Inka

At its height the Inka Empire dominated the entire Andean region of South America. While some of the Inka's remarkable feats of large-scale construction, such as Machu Picchu, remain, most Inka gold- and silver-work was melted down by the Conquistadors, who used it to enrich the treasury of Spain. This silver llama figurine, then, is a rare example of Inka metalwork. Approximately 500 years old, it is from the Island of the Sun, in Lake Titicaca, Bolivia.

Every morning, an Inka priest presided over the sacrifice of a live llama at the temple of the sun. We believe that this figurine represents a special white llama, covered with a red blanket, that was kept by the Inka ruler, or Sapa Inka, as a kind of mascot. Note the fine detailing, such as the llama's toenails, the flare of its nostrils, and the decorative trim on the blanket. The animal is made of silver; the blanket is cinnabar, and the diamond designs may have originally been inlaid with turquoise; the blanket trim is gold. The body of the llama was not made by casting, but was composed of several pieces of sheet silver carefully shaped and soldered together.

The Inka ruled the largest kingdom in the Americas. In theory, the ruler's power was absolute, and his authority was divine. But the success of the Inka's rule also depended on his legendary generosity at great feasts offered by him and his representatives at rich palaces throughout the realm. The Royal Llama was brought to the American Museum of Natural History in 1896 by Adolph Bandelier, a pioneer of anthropology, who brought many other treasures to the Museum as well.

34.
Amazon Featherwork



Ornamentation plays an important role in the indigenous cultures of the Amazonian rainforest. In this exhibit, the young man, from the Rikbaktsá tribe, is adorned with spectacular feather decorations. He wears a nose ornament comprising macaw tail feathers and pendants of human hair; a headdress, cascading down his back, is made of toucan and macaw feathers. His black, red, and yellow armbands, which fall to his waist, also derive from toucans and macaws. He plays a panpipe made of quills from a Harpy Eagle.

The woman, who is from the Amahuaca tribe, demonstrates the significant variations in ornamentation styles among different tribes of the region. Her body is decorated in black paint derived from the genipa fruit. She wears a crown made of strips of bamboo, each of which is wound with split bird quills and cotton thread that has been colored red. The fringe on top of the crown consists of spider-monkey hair.

Other objects on display here, such as the yellow ornament made from oropendola feathers, represent still more styles of embellishment to be found among the indigenous peoples of the Amazon basin. None of these adornments carries religious significance. While they are worn for ceremonial occasions, they are just as easily worn at any other time. Nor do they denote rank, as these are egalitarian tribes.

The physical and cultural survival of these tribes is imperiled, as the rainforest itself, the largest in the world, is in danger. Its rapid deforestation affects all of us, threatening the loss of crucial resources, of potential medicines, of oxygen-producing plant life, and of unique human cultures.

35.
Yakut Shaman's Robe

The diorama seen here depicts a healing ceremony of the Yakut, of Eastern Siberia. This is not an imaginary re-creation but a faithful record of a ceremony held in the late nineteenth century and described by Museum anthropologist Waldemar Jochelson.

A shaman has come to heal a sick woman, whose soul has been captured by evil spirits. He has put himself into a trance by inhaling tobacco, dancing, and beating his drum. Now his soul will travel to the spirit world and do battle in order to retrieve the woman's soul and thus restore her. His assistant, on the right, holds the shaman by a chain so that if he gets lost or trapped in the spirit world he can be pulled back.

Some of the flat iron pendants on the shaman's robe might represent bird feathers, which allow the shaman's soul to fly. The three iron disks symbolize aspects of his journey: the hole in the center of one represents the ice hole through which he descends to the realm of evil spirits; the others represent the sun and the moon, which light his path once he is there. As the shaman dances, the noise made by these pieces and by the copper bells and rattles on the robe, as well as the sound of his drum and singing, help summon the spirits. The icon on the wall tells us that the Yakut were pressured to accept Orthodox Christianity by their Russian overlords; they nevertheless maintained their own religious practices.

Jochelson was a member of the Jesup North Pacific Expedition, the Museum's first great expedition across the North Pacific rim, from the Pacific Northwest deep into Asia. The purpose of the expedition was to test the theory that Native Americans first came to North America across the Bering Strait from northeast Siberia thousands of years ago. Thanks to the work of people like Jochelson and of the many anthropologists working today, we are able to appreciate the great complexity and variety of these cultures.

36.

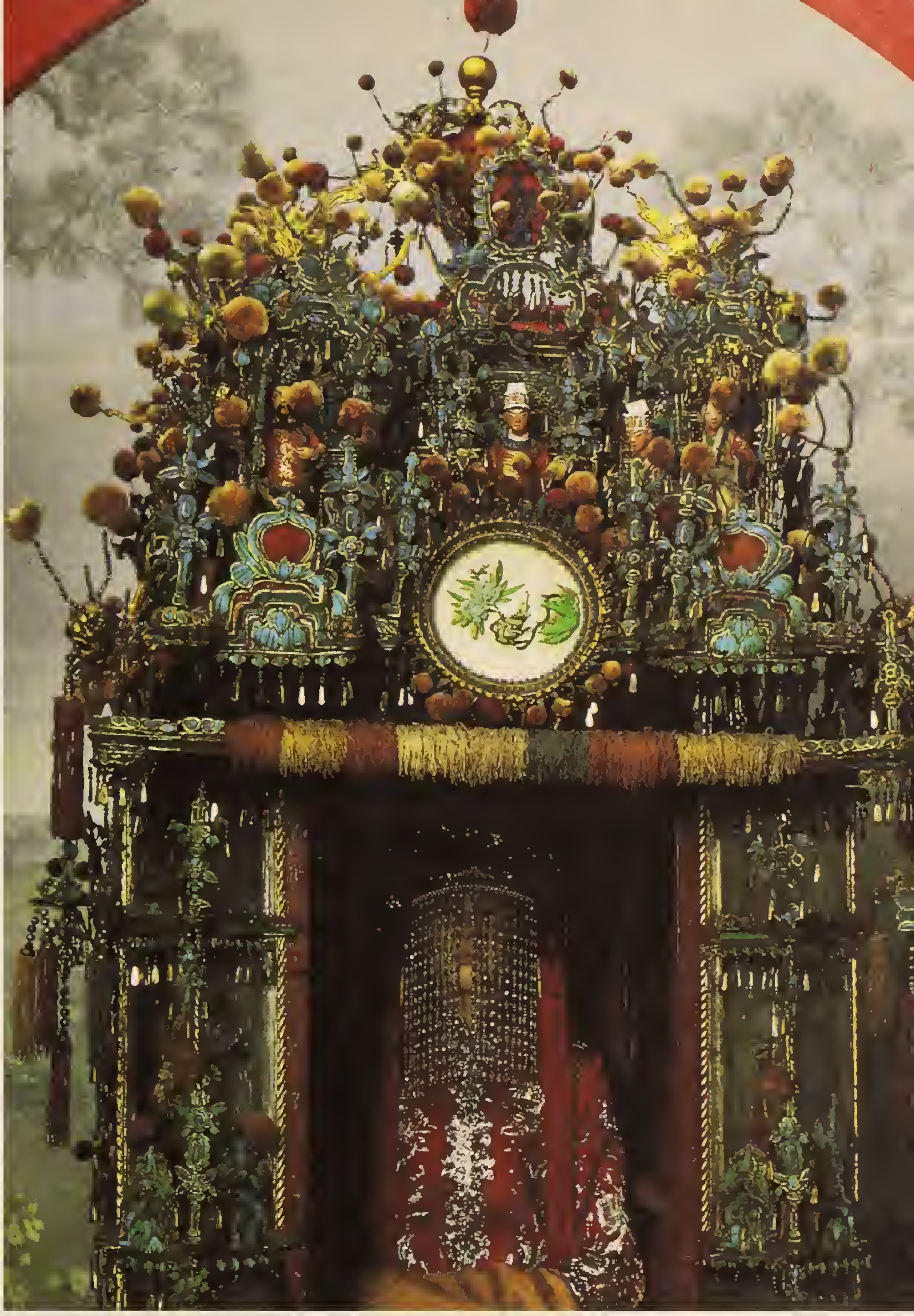
Chinese Wedding Chair

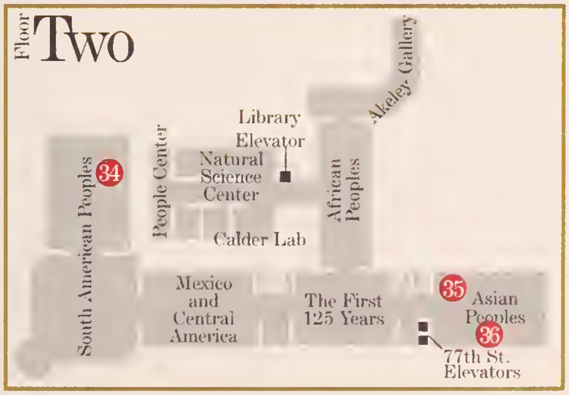
The scene evoked in this diorama could have occurred in the early decades of this century. A young bride sits in a wedding chair, having embarked on a journey to meet for the first time the man she is about to marry. This passage takes her from childhood to adulthood, from one family and way of life to another.

The elaborately ornamented chair shown here, like the entire wedding ceremony, is filled with auspicious symbols. The tiny mirrors suspended from the edges of the chair, for example, are intended to scare away demons and evil spirits; the feathers are from a kingfisher, which is considered good luck. Similarly, the bride wears red, a color believed to bring good fortune.

As the procession nears the bride's new home, firecrackers announce its arrival while also discouraging demons. The bride's feet have not been allowed to touch the ground since she was dressed for the occasion, as to do so risks a future full of bad luck. She is helped down from the chair by a woman who has been lucky—one who has not been widowed, and who has several sons.

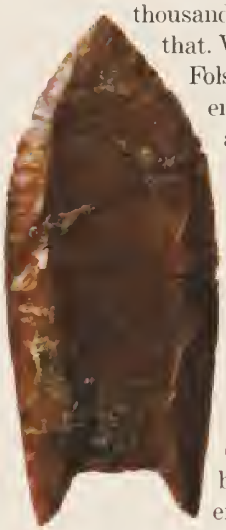
Elaborate weddings were discouraged during the Maoist era. However, with economic and political reforms, they have returned. Weddings, considered the major event of a lifetime, are an opportunity for families to exhibit their prosperity and social standing.





37.
Folsom Point

The Folsom Point, discovered near Folsom, New Mexico, in 1927, was crafted from flint some 10 thousand years ago. Discovered on a joint expedition by archaeologists from the American Museum of Natural History and the Denver Museum of Natural History, this spear point stands among the most important archaeological finds ever made on this continent. This single point settled a longstanding difference of opinion about when the first humans arrived in what we now call North America. Many believed the first Native American cultures to be no more than 2 or 3 thousand years old, while others believed that they were thousands of years older than that. With the discovery of the Folsom Point, which was embedded in the bones of a bison known to have been extinct for 10 thousand years, the disagreement was resolved: the point was incontrovertible evidence that there were humans here as early as the Ice Age. The real Folsom Point is displayed in a cast of the bones in which it was embedded, re-creating the way this momentous discovery appeared to members of the expedition.



Flintwork is the earliest American art known to archaeologists. In a testament to its sophistication, it took modern archaeologists and flint collectors many years to duplicate the technique used to produce the beautifully crafted Folsom Point, as well as the other points on view alongside it.

38.
Margaret Mead

Margaret Mead (1901–78) taught generations of Americans about the value of looking carefully and openly at other cultures to better understand the complexities of being human. Scientist, explorer, writer, and teacher, Mead, who worked in the Department of Anthropology at the American Museum of Natural History from 1926 until her death, brought the serious work of anthropology into the public consciousness.

Mead studied at Barnard College, where she met the great anthropologist Franz Boas, who became her mentor and her advisor when she attended graduate school at Columbia University. She was twenty-three years old when she first traveled to the South Pacific, to conduct research for her doctoral dissertation. The resulting book, *Coming of Age in Samoa,* was—and remains—a best-seller. She continued her research throughout her life in such places as New Guinea, Samoa, Bali, and many other places, including contemporary North America. Mead's work is largely responsible for the treasures on view in the Museum's Hall of Pacific Peoples.

In addition to her work at the Museum, Margaret Mead taught, wrote more best-selling books, contributed a regular column to *Redbook* magazine, lectured, and was frequently interviewed on radio and television. A deeply committed activist, Mead often testified on social issues before the United States Congress and other government agencies. She hoped that through all of these efforts others would learn about themselves and work toward a more humane and socially responsible society. As she once said, "I have spent most of my life studying the lives of other peoples—faraway peoples—so that Americans might better understand themselves."

39.

Peregrine Falcon Diorama

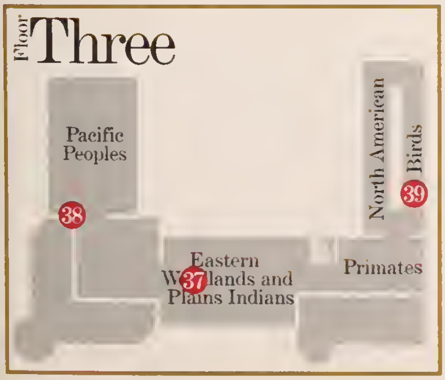
The Peregrine Falcon is one of the most widely distributed species of bird, nesting on every continent except Antarctica. It is also the swiftest of all birds of prey.

The Peregrine Falcon Diorama was conceived by the Museum's great ornithologist Frank Chapman, who actually saw the scene re-created here. Under Chapman's direction, the Museum's bird collection grew to become one of the greatest in the world, and now holds 99 percent of all known species of birds (about 9,100 different kinds). Moreover, early in this century, Chapman introduced the idea of habitat groups that depict authentic locations (here, the Palisades, where he saw three pairs of nesting Peregrines). He was also a leader in the study of bird speciation and distribution in the Western Hemisphere.

The nest site depicted here is typical of the Peregrine Falcon. The female lays its eggs on bare rock. The eggs are then incubated for thirty-two to thirty-four days by both the male and female, and the hatchlings are fed at the nest site before they can fly. This diorama shows an adult arriving at the nest site with a newly caught pigeon. It will tear this prey into small pieces, which it will hold in its bill for the young to take. Strewn around the ledge are remains of earlier meals.

Following World War II, the residues of DDT and other pesticides had a disastrous effect on the Peregrine Falcon and other birds, including the Bald Eagle and the Osprey. These residues became highly concentrated in the birds' tissues and interfered with their calcium metabolism. As a result their egg shells were so thin that the incubating adult crushed them. By 1964 there was not even one breeding pair of Peregrine Falcons east of the Mississippi River.

In the past two decades, however, the Peregrine Falcon and other birds so affected have been making a slow recovery, thanks to the 1972 ban on DDT in the United States, as well as to programs of captive breeding and release. Cities have proven to be excellent release sites, as tall buildings and bridges offer good nesting and roosting ledges, and pigeons provide an abundant source of food. The world's largest urban population of nesting Peregrine Falcons is in New York City.



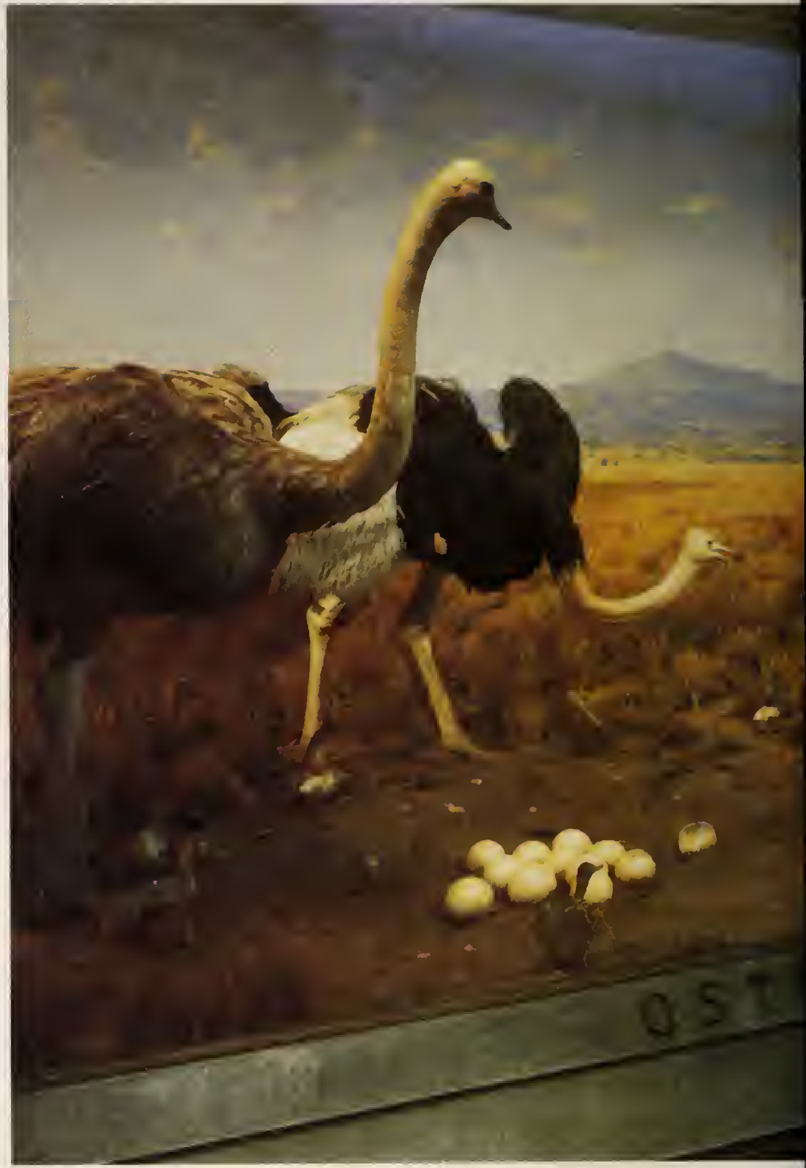
40.

Passenger Pigeons

Passenger Pigeons lived in the eastern United States from Canada to the Gulf of Mexico, breeding in their northern habitats and wintering in the southern part of their range. They migrated across this range in numbers so huge that their flocks darkened the sky. A writer once described a migrating flock of the pigeons as "a column, eight or ten miles in length ... resembling the windings of a vast and majestic river." In 1808 a single flock in Kentucky was estimated to contain over 2 billion birds. Today, in a stunning example of the human potential for destruction, the Passenger Pigeon is extinct.

During the years of westward expansion, enormous numbers of eastern chestnut and oak trees, the main source of food for the Passenger Pigeon, were cleared to make way for farms, homesteads, and towns. Moreover, the birds were believed to be a menace to crops, while they seemed to be an inexhaustible supply of food for both people and their pigs. With the extension of the railroad in the 1850s, the pigeons could be easily shipped to city markets, increasing the numbers in which they were hunted. The combination of all these factors wiped out the Passenger Pigeon. The last one, which lived in the Cincinnati Zoological Garden, died on September 1, 1914.

This exhibit was created with specimens from the Museum's collection. Like the Dodo (treasure number 21), it is a vivid reminder of extinction caused by humans.



41.

Ostrich Diorama

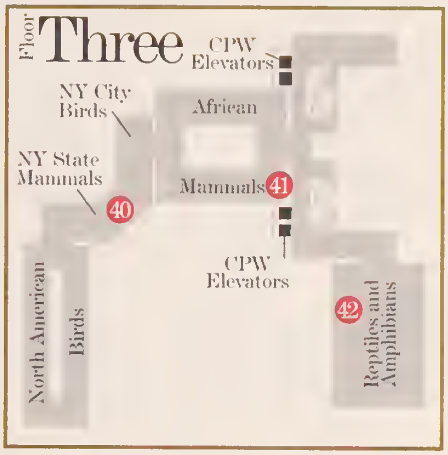
The scene re-created here takes place in the Kidong Valley, about fifty miles west of Nairobi, Kenya. A family of warthogs has stumbled upon an ostrich family. The male ostrich, protective of its family, reacts with alarm, its neck outstretched, its mouth open. But the ostrich is not preparing to attack the unwelcome guests. It will do so only if severely threatened, when it may kick hard enough to kill a lion. Rather, this bird is performing what is known as a "distraction display." In order to lure intruders from the nest, a male ostrich will run towards and away from the interlopers, and may even drop to the ground, feigning injury. While it is doing this, the well-camouflaged chicks may scatter into the grass, or run for cover accompanied by the female.

Such elaborate behavior is suggestive of the complex social life of the ostrich. A more subtle indication of ostrich behavior can be found in the ratio of adults to young in this diorama. A female ostrich lays six to eight eggs in a single season. Yet here there are more than eight young, both hatched and unhatched. This is because male ostriches are polygamous. After digging a shallow pit for a nest, a male lures prospective mates to it, several of whom may lay their eggs in the nest. Then a primary female, or "major hen," is chosen to watch over the entire clutch with the male. Both the male and the

major hen sit on the eggs.

The ostrich, which is the largest bird in the world (the male can be eight feet tall and weigh as much as 340 pounds), is also one of the most adaptable. It lives in a wide variety of environments in southwest Africa, from grasslands to open forest. Like the extinct Dodo (treasure number 21), the ostrich's adaptation to its environment has involved the loss of flight.

Researchers continue to observe the fascinating behavior of the ostrich, looking for clues to its adaptability to its surroundings and to change, and for more information on its complex social life.



42.

Poison Dart Frogs

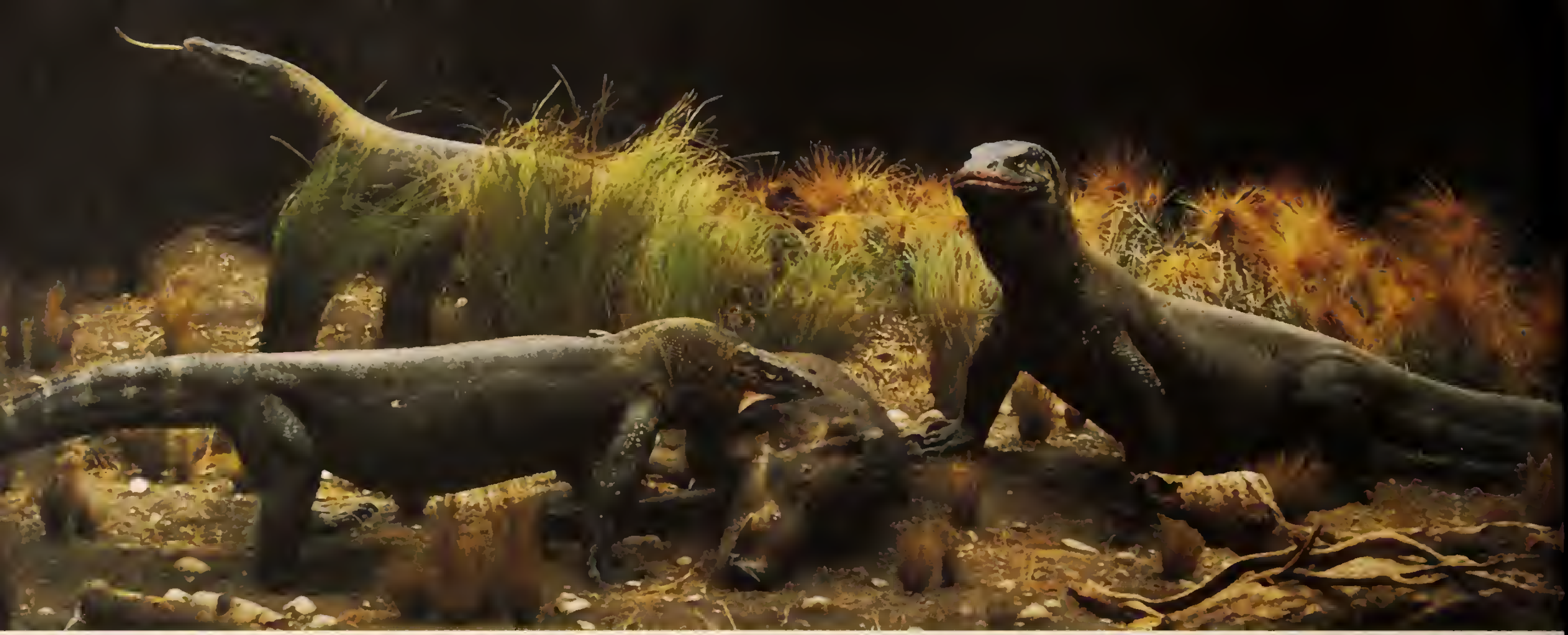
The bright coloration of the poison dart frog serves as a warning to potential predators that it is one of the most poisonous animals on Earth. From tiny pores in its skin, the frog secretes a defensive toxin that makes it unpalatable to curious predators and which could easily kill if injected into a human or other animal.

Chocó Indians employ this secretion to poison the tips of their blowgun darts for hunting monkeys and other small game. The use of frog poison for this purpose is practiced only in the Pacific lowlands of western Colombia, although the poison dart frog has many brilliantly colored, less toxic relatives living throughout the tropical rainforest in lower Central America and northern South America.

Much of the basic research on tropical poison frogs has been conducted by scientists in the Department of Herpetology at the American Museum of Natural History in collaboration with colleagues at the National Institutes of Health. Their work in jungle camps and modern laboratories has led to the discovery of dozens of new species of frogs and about 300 new alkaloids from frog skin.

Many of these toxic alkaloids, including those from the skin of the poison dart frog, have unique effects on nerve and muscle. For that reason, the frog toxins have become important tools in biomedical research aimed at better understanding and treatment of neurological and muscular disorders. Someday, your life may literally be saved by a frog.

Medically important compounds awaiting discovery in tropical plants and animals are among the many reasons for preserving tropical rainforests. Numerous plants and animals live only in small geographic areas and face extinction when their habitat disappears. Loss of biodiversity means loss of potential knowledge on many fronts.



43.

Komodo Dragons

The rare Komodo Dragon is the world's biggest and most powerful lizard. This ferocious hunter, the largest surviving member of the monitor lizard group, grows to a length of ten feet and can weigh as much as 200 pounds. While a few Komodo Dragons live in zoos, the lizard's native habitat is the Indonesian islands of Komodo, Flores, Padar, and some of the Lesser Sunda islands (part of the Malay Archipelago).

Among the animals Komodos attack are deer, goats, pigs, dogs, and, occasionally, humans. They also sometimes attack one another. The three lizards seen here were brought to the Museum from a 1926 expedition to Komodo. The lizard in the foreground of the diorama is beginning to eat a wild boar; the one in the background uses its long, forked tongue, with which it can both smell and taste, to sense chemicals in the air.

The fierce might of the Komodo Dragon—reflected in its name—has endowed it with nearly mythic status in popular culture. Yet despite our fascination with this animal, it is legally endangered. While the lizards are now being bred in captivity, their continued existence in the wild depends on the maintenance of their native habitat.

44.

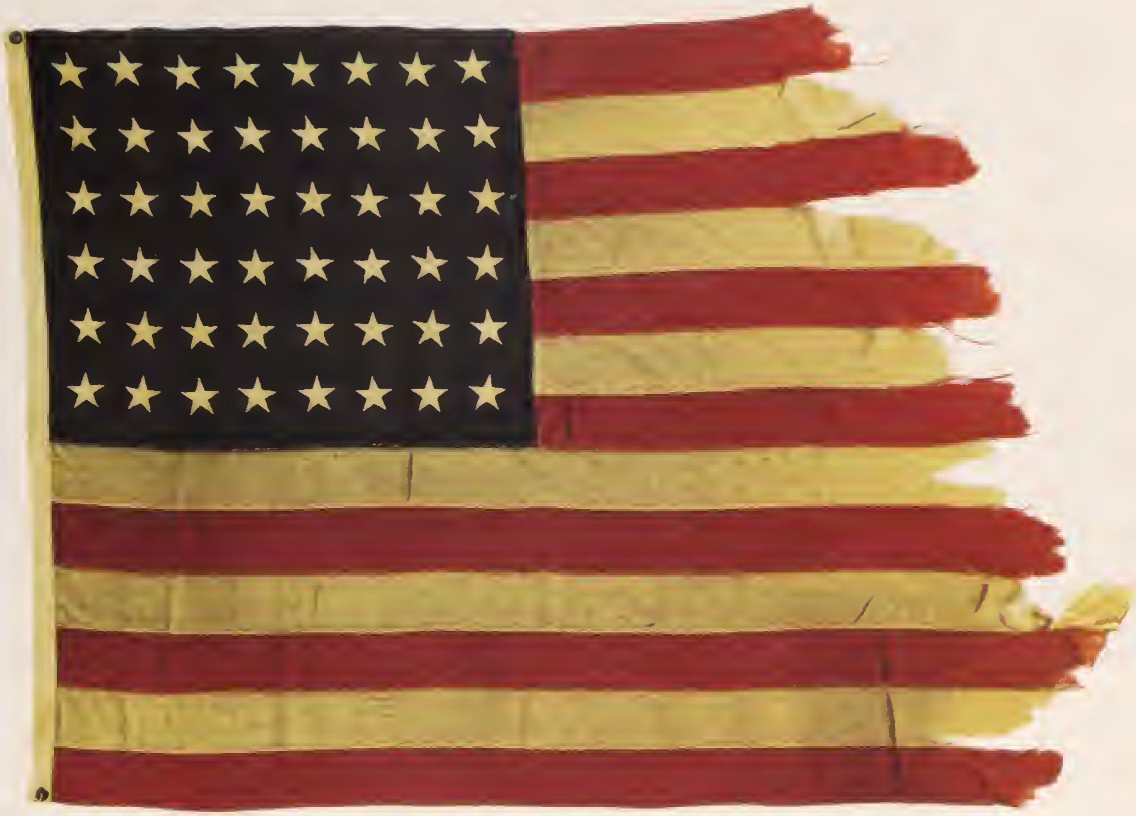
Unisexual Whiptail Lizards

The three Whiptail Lizards on view in the Hall of Reptiles and Amphibians all play a part in one of the greatest mysteries of nature. On the left of the display is the Western Whiptail, which lives in the desert; on the right is the Little Striped Whiptail, a denizen of grasslands; in the center is the New Mexico Whiptail, pictured here. This last is an all-female species that is actually a mixture of the other two.

Most products of crossbreeding, such as the mule, are sterile. But the New Mexico Whiptail, as well as several other all-female species of whiptail lizard, does reproduce, and all of its offspring are female. Moreover, it reproduces by *parthenogenesis*—its eggs require no fertilization, and its offspring are exact and complete genetic duplicates of the mother.

Scientists understand only partially how this reproductive mode developed, and it raises many questions. One of the most intriguing is how this cloning affects the lizard's ability to adapt to environmental changes. Since there is no genetic variation except that which occurs through mutation, the New Mexico Whiptail cannot evolve as other species do.

The New Mexico Whiptail Lizard also offers an extraordinary opportunity to learn more about the role of sperm in fertilization, as well as about cloning. Through this anomaly, scientists may learn more about the norm.



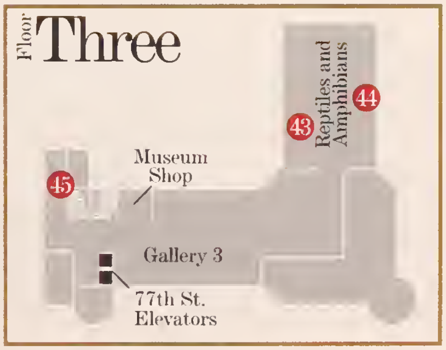
45.
Gobi Flag

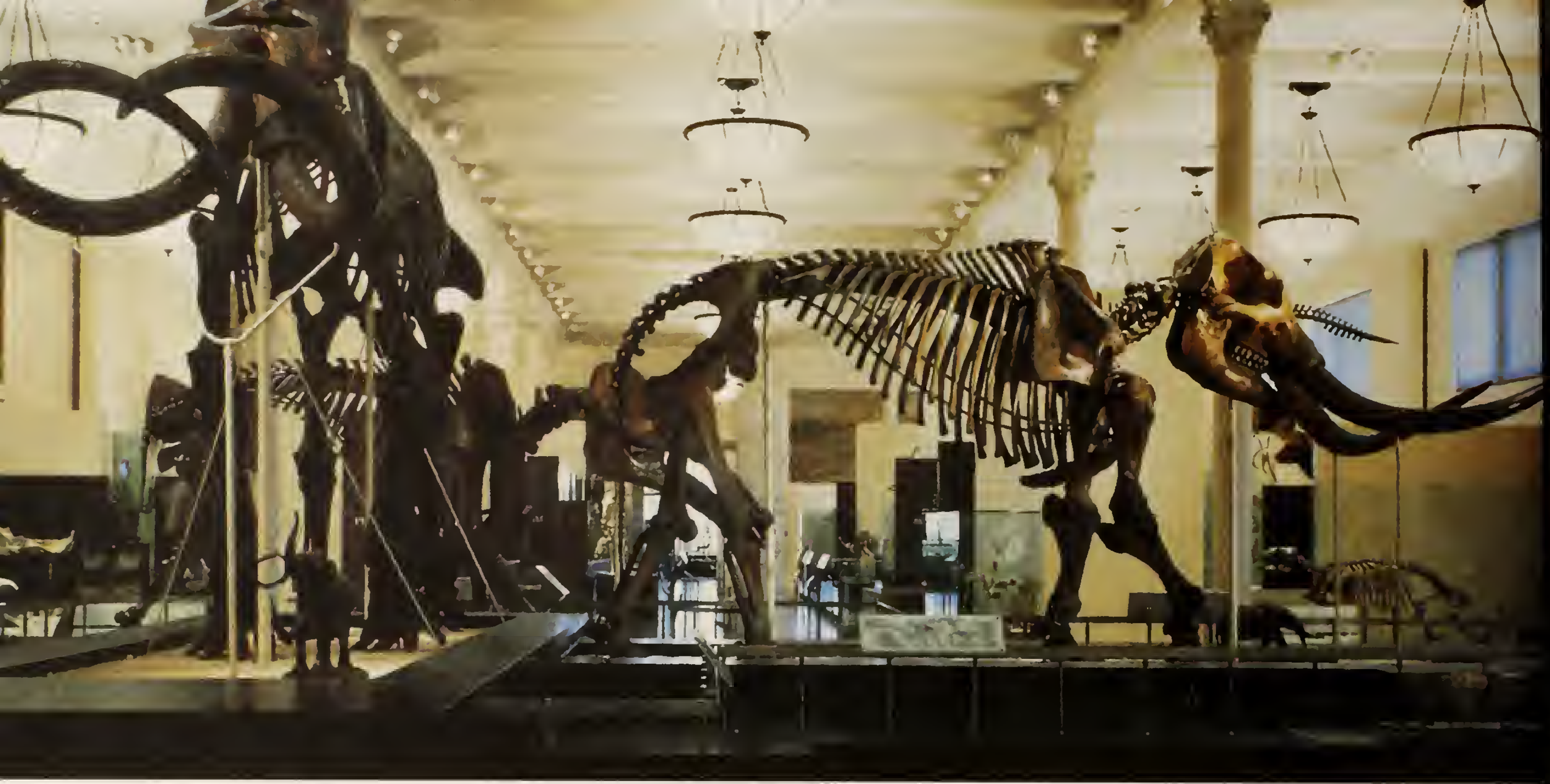
This flag is a symbol of both a specific expedition—to the Gobi Desert in Mongolia in the 1920s—and of all the expeditions the American Museum of Natural History has taken and continues to take. The expedition to the Gobi Desert, which made news all over the world, was led by Roy Chapman Andrews, a mammalogist at the Museum from 1906 to 1934, and director of the Museum from 1934 to 1941. In addition to dozens of scientists and assistants, the expedition also included some 125 camels. The flag was mounted on the lead car in the expedition, and was tattered in a desert storm that sandblasted the car windshields so badly that they needed to be removed the next day in order to see.

The 1920s Gobi expedition, called the Central Asiatic Expedition, did not accomplish what it had originally set as its mission, to discover evidence of the origins of humankind. But it did discover something equally important: the first dinosaur eggs ever identified. Moreover, the expedition made a thorough zoological, geological, and archaeological survey of the region, which the team completely mapped. Because of these enormous achievements, as well as dozens of other major finds, this expedition is among the most significant the Museum has undertaken.

Expeditions continue to be an integral part of the work done at the Museum, and they number more than 100 every year. Since 1990 a new expedition to the Gobi Desert, undertaken in collaboration with the Mongolian Academy of Sciences, has been revisiting sites examined by the Central Asiatic Expedition as well as new areas. This expedition has yielded several important fossil finds, including *Mononykus*, an early bird that documents the evolutionary transition between carnivorous dinosaurs and modern birds, and a truly spectacular find, a dinosaur embryo (treasure number 24). In 1993 an expedition team discovered a site called Ukhaa Tolgod. This proved to be one of the world's richest sources of vertebrate fossils from the end of the age of dinosaurs.

The Gobi Flag thus stands not simply for the achievements of a single expedition, but for the quest for knowledge, insight, and understanding that is the impetus for all expeditions, and informs all of the Museum's activities, both in the public eye and behind the scenes.





46.

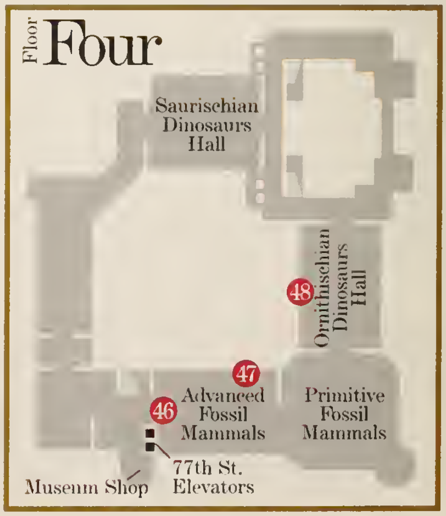
Warren Mastodon

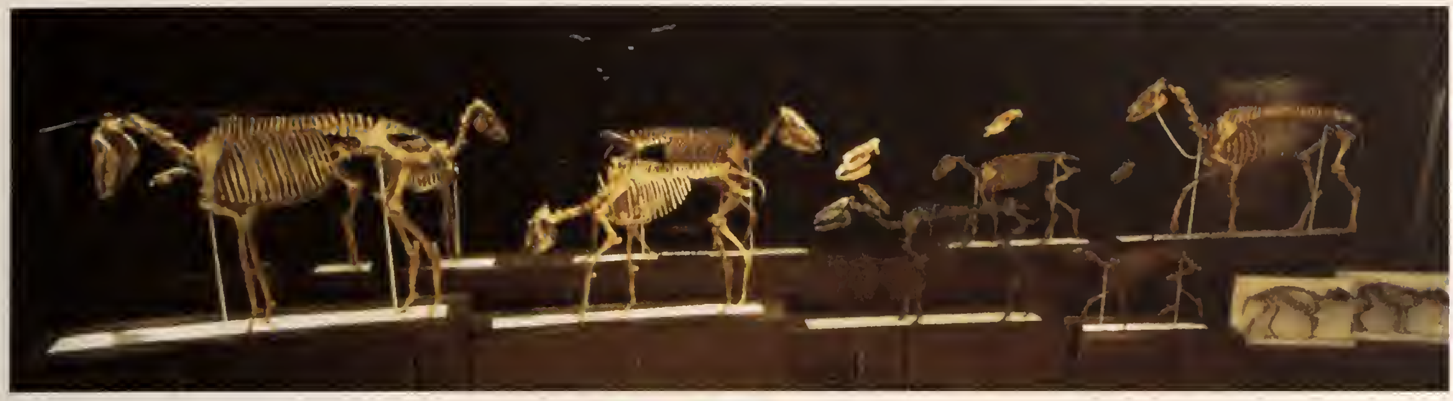
Every bone in this mastodon skeleton is real. Discovered in 1845, it was the first entire American mastodon skeleton found in the United States, and is still one of the most complete such skeletons known. It was uncovered by a crew digging for peat fuel less than 100 miles from New York City, in a bog near the town of Newburgh, in Orange County, New York. When found, the mastodon was still in the position in which it had died some 11 thousand years ago, standing upright, with its legs thrust forward and its head tilted upward, apparently gasping for air.

This specimen is named for John Warren, a professor of anatomy at Harvard University who bought the remains, wrote about them, and displayed them in a small museum in Boston. The Warren Mastodon was acquired by the American Museum of Natural History in 1925.

Mastodons, like living elephants, are proboscideans. Yet unlike elephants today, mastodons ranged widely over the northern continents. Other proboscidean skeletons unearthed in North America are displayed near the Warren Mastodon. One of them, *Gomphotherium*, a distant relative of the mastodon, lived 10 million years ago and was discovered in South Dakota. Another is the skeleton of a mammoth that died approximately 20 thousand years ago, and was collected in Indiana. (Mammoths were the giants among proboscideans, and are more closely related to living elephants than is the mastodon.)

The discovery of the mastodon skeleton, and Warren's serious treatment of it, mark the beginning of vertebrate paleontology in this country.





47.

Evolution of Horses

The American Museum of Natural History owns the largest collection of fossil-horse skeletons in the world; since the early years of this century, their exhibition has represented a classic demonstration of evolution. Indeed, by looking carefully at this complex and multifaceted display, we learn not only about the evolution of the horse, but also about the development of scientific views of evolution in general.

The fossil horses aligned from right to left in the front of the case represent the evolution of horses as a steady progression along a single pathway—until recently a widely held view of evolution. Here the horse is seen to evolve in a neat, predictable line, gradually getting larger, with fewer toes and longer teeth. Those arranged (also from right to left) in the back of the case present a more current scientific view of evolution, determined through a method of analysis called *cladistics*, which has shown evolution to be a more complex, branching history, much like the genealogical history of your own family. Cladistics, which the Museum has played an important role in developing, is the grouping of organisms by shared, specialized characteristics; each time a new evolutionary feature appears, a new branch grows on the evolutionary tree, comprising organisms that have both the old traits and the new one. Thus the display in the back shows that some later horses, such as *Calippus*, number 46, are actually smaller than earlier ones, and that other later horses, such as *Neohipparion*, number 40, still had three toes.

This display is therefore both a classic demonstration of evolution and a paradigm of scientific method at the Museum.

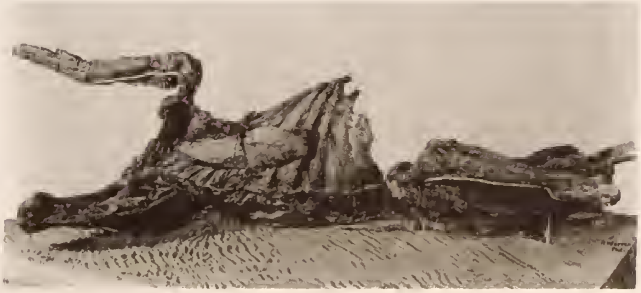
48.

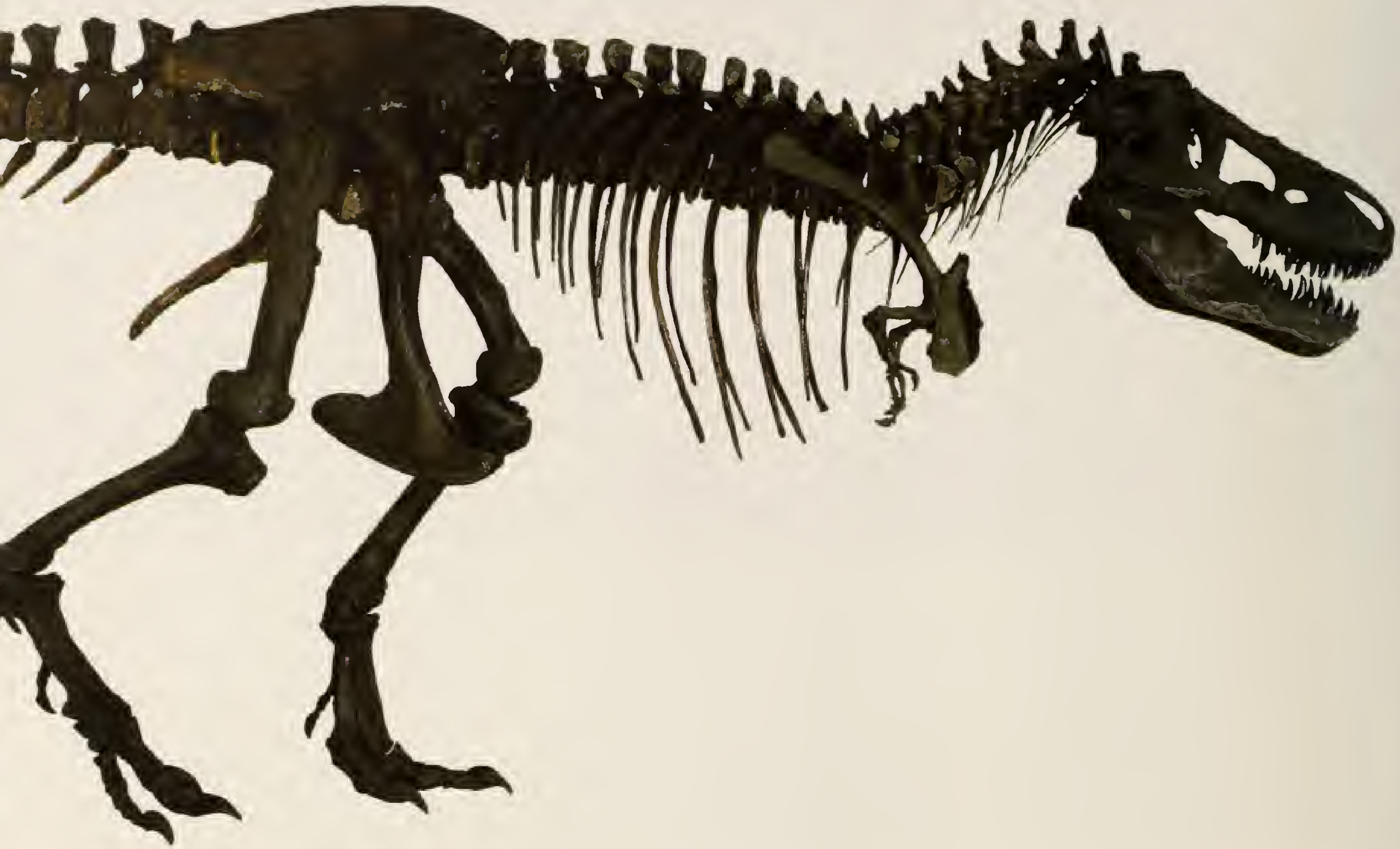
Dinosaur Mummy

On view when new dinosaur halls open, May 1995.

This so-called Dinosaur Mummy is a fossilized imprint of the carcass of a duck-billed dinosaur. With impressions of skin, flesh, and even tendons, it is one of the most complete pieces of Mesozoic dinosaur remains ever found, and is one of the greatest discoveries in the history of paleontology. When the fossil was unearthed, in 1908, it offered scientists the fullest picture yet of dinosaur anatomy. Even a casual inspection of this specimen can teach visitors something about dinosaurs. One can see, for example, that the skin of this creature, marked by little bumps called *tubercles*, was similar to that of an alligator, or to the skin on birds' feet, and that the tubercles are larger along the animal's back and sides, and smaller around the joints, which needed to be flexible.

This specimen was discovered by Charles Sternberg. The Sternbergs were a family of fossil collectors who worked in areas of the country thought to be hunted clean. It was in such a place, in Converse County, Wyoming, that Sternberg and his son made this immensely important find.





49.

Tyrannosaurus

On view when new dinosaur halls open, May 1995.

Almost everything about this dinosaur—the four-foot-long jaw, the six-inch-long teeth, and the huge thigh bones—bespeaks the enormous power of *Tyrannosaurus rex*, the largest theropod (or meat-eating dinosaur) that ever existed. Most of the bones here are real, fossilized *Tyrannosaurus* bones. They are from two specimens discovered in Montana by Museum paleontologist Barnum Brown in 1902 and 1908.

These 65-million-year-old bones were once arranged so that the dinosaur stood upright, propped on its tail. Based on new research, however, Museum scientists determined that it was more accurate to show *Tyrannosaurus rex* as you see it here, on two feet, in a stalking position, with its head low, tail extended, and one foot slightly raised. The dinosaur in this position is equally if not more terrifying than before, with implications of speed added to its obvious strength and size.

While the *Tyrannosaurus rex* is posed as if it is stalking prey, we do not in fact know for sure whether meat-eating dinosaurs such as this were active hunters—tracking down, attacking, and killing prey—or scavengers, feeding on the carcasses of other dinosaurs. While its huge jaws and its strong legs would certainly be forceful hunting weapons, *Tyrannosaurus rex's* arms were too short to reach its mouth, and its hands had only two fingers instead of three, making it unable to grasp. The fossils discovered thus far offer some evidence about whether theropods were hunters or scavengers, but not enough to answer the question.

In order to reassemble the *Tyrannosaurus rex*, a wide array of professionals, with skills ranging from vertebrate paleontology to metallurgical analysis, structural engineering, and blacksmithing, was needed. Together they created this display, with its vivid evocation of the fearsome power of the most famous of all dinosaurs.

50.

Glen Rose Trackway

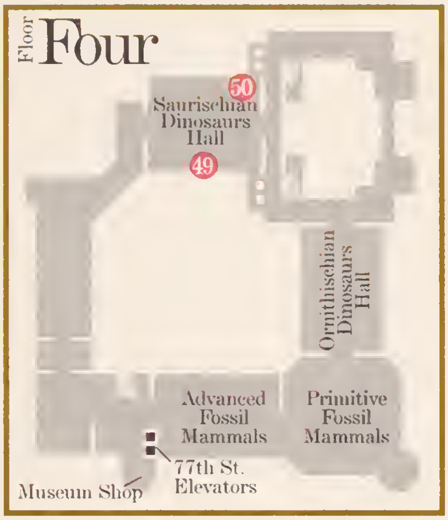
On view when new dinosaur halls open, May 1995.

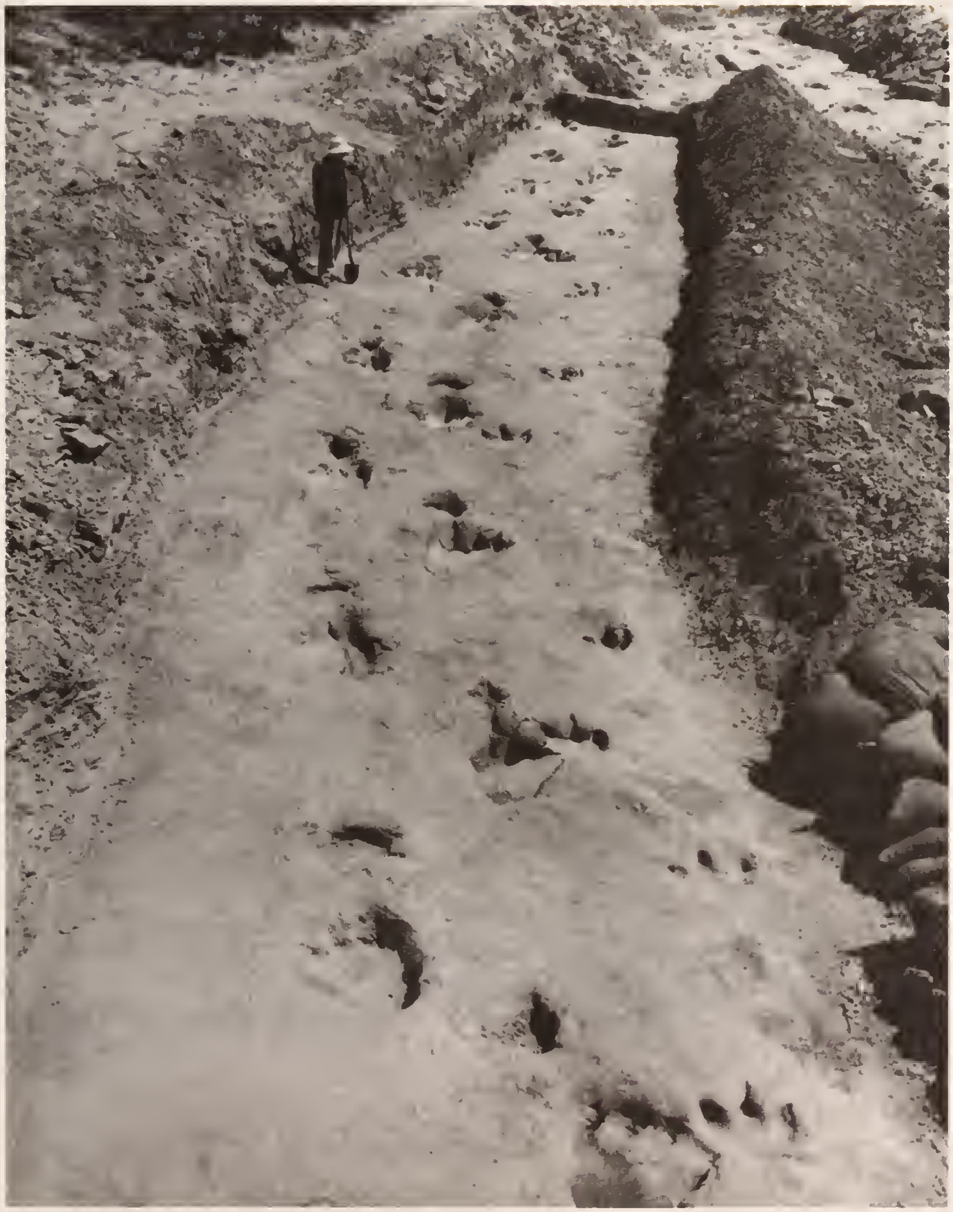
The Glen Rose Trackway is a series of fossilized dinosaur footprints left some 107 million years ago at the edge of a lagoon. Excavated from the bed of the Paluxy River, near the town of Glen Rose in central Texas, the trackway gives a picture of dinosaurs that in some ways is more striking than that offered by fossils.

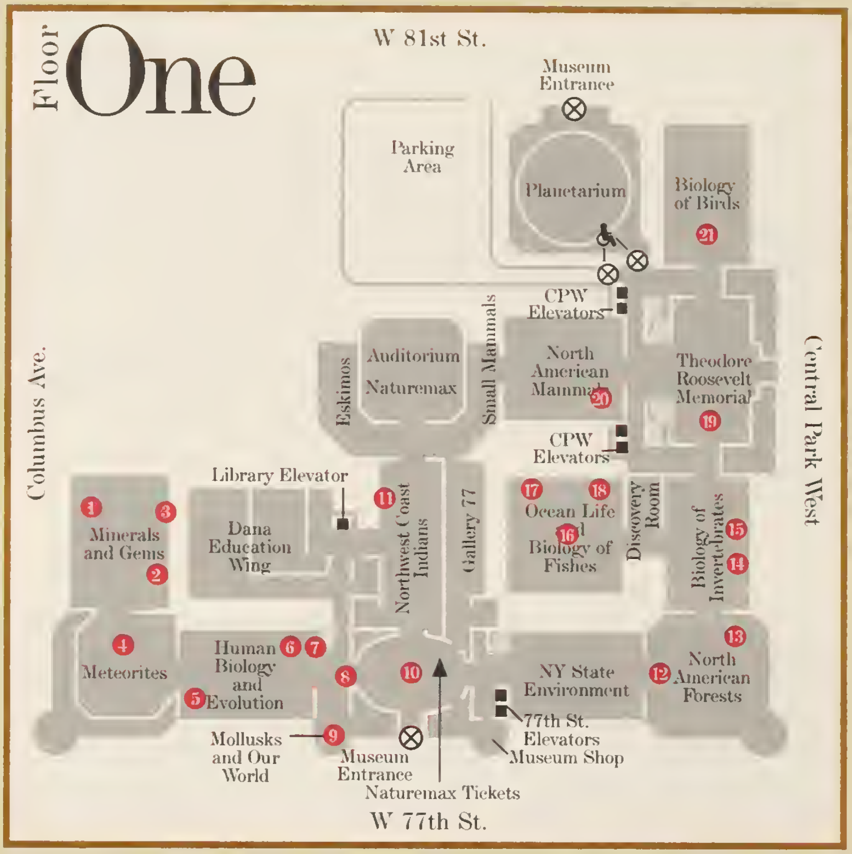
The smaller prints, with their three-toed impressions, are the traces of a theropod, a meat-eating dinosaur that walked on its two hind feet. The larger ones, so well preserved that they contain impressions of the dinosaur's toes, were almost certainly left by a plant-eating sauropod dinosaur, like *Apatosaurus*. The hind feet of these colossal dinosaurs measured one yard in length and three-quarters of a yard in width.

The footprints in the Glen Rose Trackway were saved through an unusual combination of events. They were originally made in soft mud, which was soon covered by silt that had filtered through quiet water. Millions of years later, inland seas covered parts of Texas, leaving sediments that buried the footprints deeper still. Within the last few thousand years, the Paluxy River eroded the sediments away and exposed the mudflat, with its superbly preserved footprints. A trail such as this offers scientists information about how dinosaurs stood and how they moved.

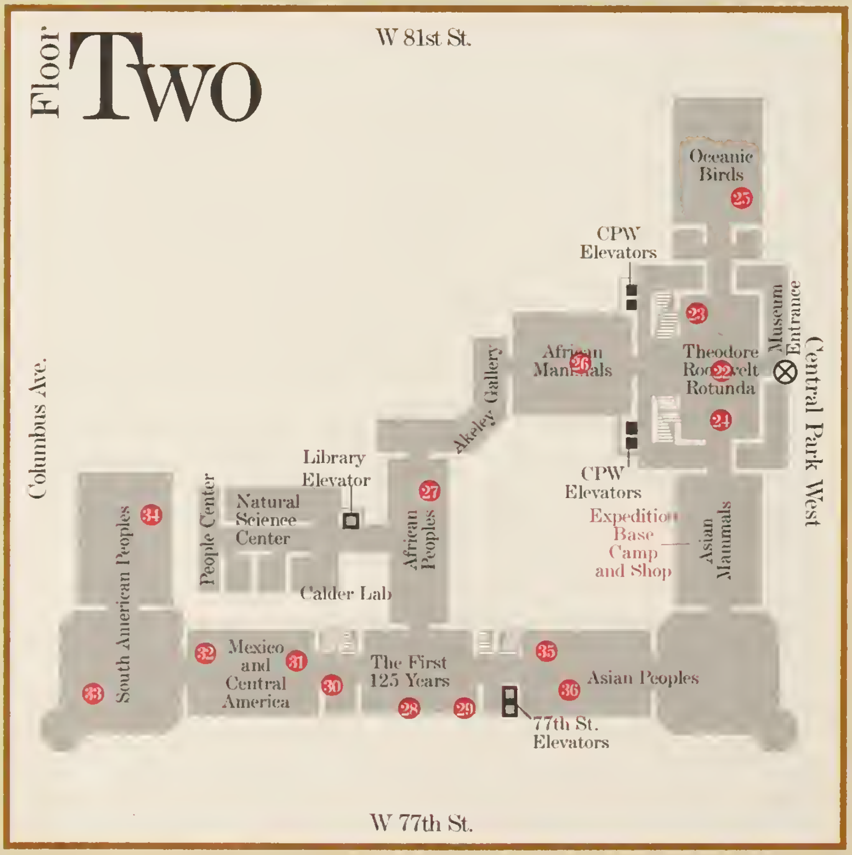
The Glen Rose Trackway was collected in 1938 by Roland T. Bird, who was in Texas looking for dinosaurs and other fossils for the Museum. Since the trail led into the river, part of it was either underground, underwater, or both. With a large work crew, Bird excavated the trackway and divided it into three sections, one of which you see here. The others are at the University of Texas and the Smithsonian Institution.



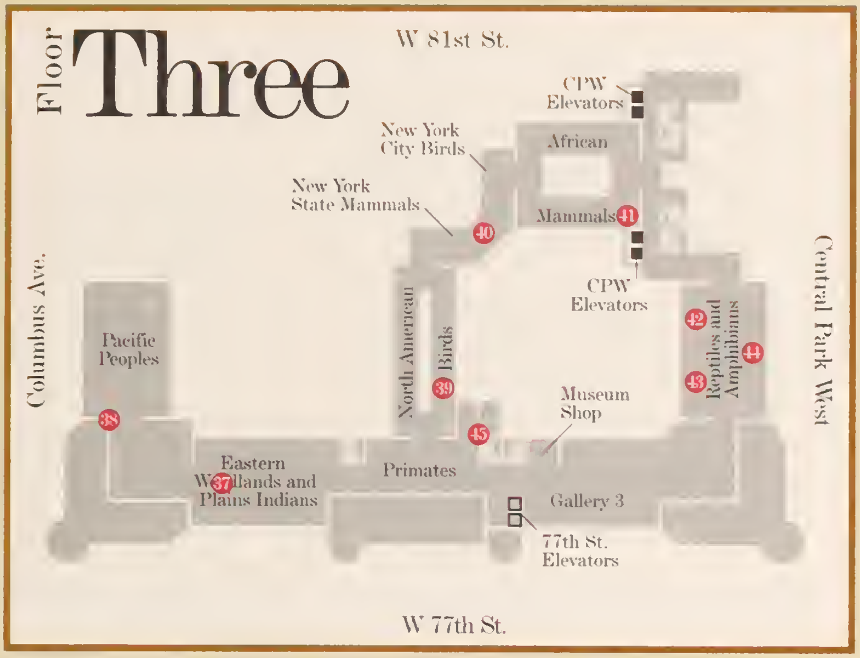




Floor 1
1 Newmont Azurite
2 Star of India
3 Patricia Emerald
4 Cape York Meteorite
5 Ice Age Art
6 Mural of Primate Evolution
7 Visible Woman Hologram
8 Ammonites
9 Chank Shell Trumpet
10 Haida Canoe
11 Tlingit Armor
12 Giant Sequoia
13 Forest Floor Diorama
14 Glass Protozoa
15 Giant Mosquito Model
16 Blue Whale
17 Coelacanth
18 Evolutionary Tree of Fishes
19 Insect Collection
20 Perry Wilson's Paintings
21 Dodo

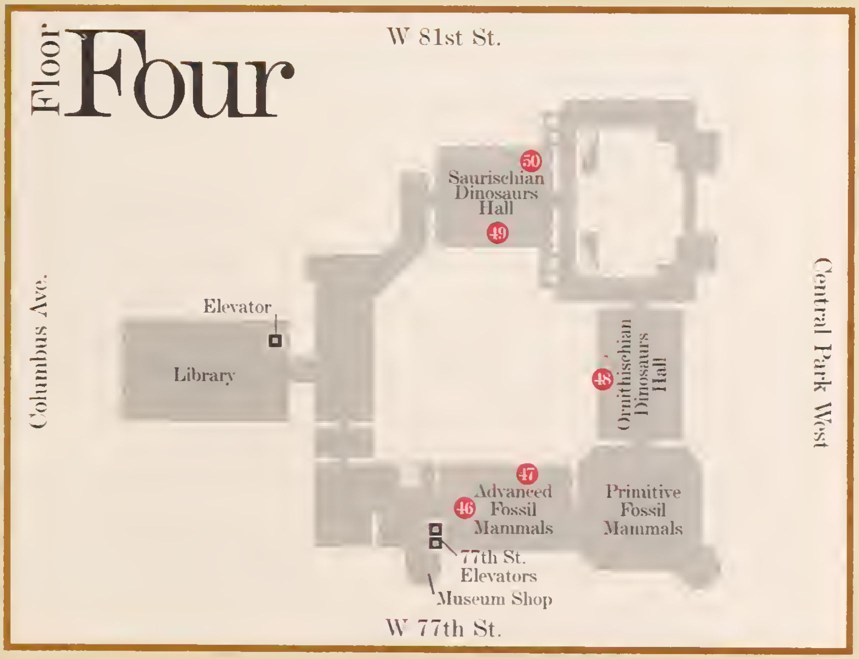


Floor 2
22 *Barosaurus*
23 Brazilian Fossil Fishes
24 Dinosaur Embryo
25 Guano Islands Diorama
26 Akeley Hall of African Mammals
27 African Spirit Dancer
28 Tasmanian Wolf
29 Molecular Biology Laboratory
30 Watercolors by Joseph Wolf
31 Kunz Axe
32 Mayan Stone Carving
33 Royal Llama of the Inka
34 Amazon Featherwork
35 Yakut Shaman's Robe
36 Chinese Wedding Chair



Floor 3

37 Folsom Point
38 Margaret Mead
39 Peregrine Falcon Diorama
40 Passenger Pigeons
41 Ostrich Diorama
42 Poison Dart Frogs
43 Komodo Dragons
44 Unisexual Whiptail Lizards
45 Gobi Flag



Floor 4

46 Warren Mastodon
47 Evolution of Horses
48 Dinosaur Mummy
49 *Tyrannosaurus*
50 Glen Rose Trackway

About the Gallery Guide

The Gallery Guide is a new type of audio player for the Museum visitor. Unlike traditional audio tours, which follow a single, set route, the Gallery Guide allows you to create your own pathway through the treasures that comprise *Expedition*, or to take one of three specially created tours. Available in the Expedition Base Camp for a $5.00 rental fee, the Gallery Guide offers fascinating commentaries on the artifacts and specimens you will discover on your expedition. You will be accompanied by the thoughts and stories of famous individuals from the Museum's 125-year history, such as the legendary Roy Chapman Andrews—the real-life model for Indiana Jones; famed anthropologist Margaret Mead; and explorer Carl Akeley, among others.

As you enter each of the exhibition halls, the audio player automatically gives an overview of the hall's themes. To hear the story of any individual treasure, you simply enter the treasure's number on the keypad. Visitors with limited time, or who may want guidance in planning a route through the Museum, may choose one of the specially-designed tours, lasting 30, 45, and 60 minutes respectively. These have been pre-programmed into the audio player.

Operating instructions for the Gallery Guide

To begin your expedition: Press 99 on the numbered buttons along the top of the audio player. Then press the "play" button—the green one on the right.

For information on any of the fifty treasures: Enter the number on the yellow banner above the treasure. Then press "play."

To hear gallery overviews again: Look at the list on the right for the three-digit number of the exhibition hall in which you are interested. Enter that number and press "play."

To stop any message: Press "pause"—the red button on the left. To continue with the same message, press "play;" to hear a message again from the beginning, press the black button with the double arrow on the far left. To hear a different message, enter the number for the new message and then press "play."

To hear general information on the Museum: See page 39 for a complete list of numbers to enter for information on a variety of Museum facilities and programs. These are also listed on the outside of your player.

To control the volume: Adjust the dial on the right side of your player.

To view the text of any audio message: Use the two small buttons to the right of the screen: the top one moves the text forward; and the bottom one lets you see the previous line.

To hear the messages in Spanish: Please ask the Gallery Guide sales staff for assistance.

Please note: While you are using the Gallery Guide, it is best not to move too far away from the treasure you are hearing about. If you move into a new hall, you will trigger a new message.

You will hear these instructions when you press 99 followed by "play" to begin your Expedition. To listen to them again at any time, enter 60 and "play."

Exhibition Halls

1st floor

100. Harry Frank Guggenheim Hall of Minerals and Morgan Memorial Hall of Gems
101. Arthur Ross Hall of Meteorites
102. Human Biology and Evolution
103. Mollusks and Our World
104. Northwest Coast Indians
105. Eskimos
106. Felix M. Warburg Memorial Hall of New York State Environment
107. North American Forests
108. Biology of Invertebrates
109. Ocean Life and Biology of Fishes
110. North American Mammals
111. Small Mammals
112. Leonard C. Sanford Hall of the Biology of Birds

2nd floor

113. Theodore Roosevelt Rotunda
114. Whitney Memorial Hall of Pacific Bird Life
115. Akeley Hall of African Mammals
116. African Peoples
117. Birds of the World
118. Mexico and Central America
119. South American Peoples
120. Gardner D. Stout Hall of Asian Peoples

3rd floor

121. Primates
122. Eastern Woodlands Indians
123. Plains Indians
124. Pacific Peoples
125. North American Birds
126. New York State Mammals and New York City Area Birds
127. Reptiles and Amphibians

4th floor

128. Paul and Irma Milstein Hall of Advanced Mammals
129. Primitive Mammals
130. Ornithischian Dinosaurs
131. Saurischian Dinosaurs

Special Instructions for Pre-programmed Tours

To take a pre–programmed tour:
To select the 30-, 45-, or 60-minute tour, enter the number for that tour and press "play." The numbers for these tours are:

30-minute tour:
Audio Player Number: 81
Tour Content:
35. Yakut Shaman's Robe
10. Haida Canoe
4. Cape York Meteorite
2. Star of India
5. Ice Age Art
27. African Spirit Dancer
26. Akeley Hall of African Mammals
22. *Barosaurus*
24. Dinosaur Embryo

45-minute tour:
Audio Player Number: 82
Tour Content:
35. Yakut Shaman's Robe
10. Haida Canoe
4. Cape York Meteorite
1. Newmont Azurite
2. Star of India
3. Patricia Emerald
5. Ice Age Art
45. Gobi Flag
47. Evolution of Horses
46. Warren Mastodon
27. African Spirit Dancer
26. Akeley Hall of African Mammals
22. *Barosaurus*
24. Dinosaur Embryo

60-minute tour:
Audio Player Number: 83
Tour Content:
35. Yakut Shaman's Robe
29. Molecular Biology Laboratory
28. Tasmanian Wolf
31. Kunz Axe
14. Glass Protozoa
16. Blue Whale
20. The Art of Illusion: Perry Wilson's Paintings
11. Tlingit Armor
10. Haida Canoe
4. Cape York Meteorite
1. Newmont Azurite
2. Star of India
3. Patricia Emerald
5. Ice Age Art
45. Gobi Flag
47. Evolution of Horses
46. Warren Mastodon
27. African Spirit Dancer
26. Akeley Hall of African Mammals
22. *Barosaurus*
24. Dinosaur Embryo

Once you enter a tour number, your audio player will provide all the instructions for the tour you have chosen, including directions from one treasure to the next. Please note that you do not have to enter individual treasure numbers. Also, on these tours you will *not* hear the gallery overview as you enter each exhibition hall.

To hear about a treasure that is not on the tour:
Press the red "pause" button. Walk to the treasure you want to see, enter its number on your player, and press "play." To resume your tour, walk back to the treasure you were about to see when you interrupted your tour and enter the tour number (81, 82, or 83), followed by the *treasure* number on the banner, and then press "play." Your tour will resume.

Numbers to enter for Museum information:

64	Museum hours
65	Naturemax films
66	Hayden Planetarium
67	Museum Shops
68	Restaurants
69	Free Highlights Tours
70	Educational Programs
71	Library
72	Discovery Tours
73	Membership
74	Volunteers
75	Information Desks
76	Restrooms
77	Public Telephones

General Information

Museum Hours and Admission: Sunday–Thursday, 10:00 a.m.–5:45 p.m.; Friday, Saturday, 10:00 a.m.–8:45 p.m. Closed Thanksgiving and Christmas. Suggested admission $6.00 per adult; $3.00 children 12 and under; $4.00 students and senior citizens with ID. Members admitted free.

Naturemax Films: IMAX films are shown in the Naturemax Theater, on the first floor, near the Hall of Northwest Coast Indians. Daily show times are every hour on the half hour, 10:30 a.m.–4:30 p.m.; double features Fridays and Saturdays, 6:00 & 7:30 p.m. Single-feature tickets: $6.00 adults; $3.00 children 12 and under; $5.00 students and senior citizens with ID. Double-feature tickets: $7.50 adults; $3.50 children 12 and under; $6.50 students and senior citizens with ID. Tickets available at the Naturemax ticket counter, near the 77th Street entrance. For information, please ask at the Naturemax ticket counter or any information desk, or call 212-769-5650.

Hayden Planetarium: Admission $5.00 adults; $2.50 children 12 and under; $4.00 students and senior citizens with ID. Discounted admission for Museum members. For information on the Planetarium's hours and schedule of Sky Shows, please ask at the Planetarium entrance or any information desk, or call 212-769-5900.

Museum Shops: A special Expedition Shop, located in the base camp (Roosevelt Rotunda), offers a wide range of books and travel-related gear. Other Museum Shops are on the first floor, near the 77th Street entrance; on the third floor, outside Gallery 3; and on the fourth floor, near the fossil mammal halls. The Junior Shop is on the lower level. Museum members receive a 10% discount at all shops.

Restaurants: *Garden Cafe,* on the lower level, offers a variety of selections in a casual setting. Lunch, Monday–Friday, 11:30 a.m.–3:30 p.m. Dinner, Friday & Saturday, 5:00–7:30 p.m. Brunch, Saturday & Sunday, 11:00 a.m.–4:00 p.m. For reservations, please call 212-769-5865. *Diner Saurus,* on the lower level, offers fast service for sandwiches, salads, and snacks. Open daily, 11:00 a.m.–4:45 p.m. Show your Gallery Guide rental coupon for a 10% discount (15% for Museum members) in the Garden Cafe and Diner Saurus.

Library: Open to the public Tuesday–Friday, 11:00 a.m.–4:00 p.m. Take the Library elevator to the fourth floor. For information, please call 212-769-5400.

Membership: Among the many benefits of membership are free admission to the Museum, discounted admission to Naturemax films, discounts in the Museum Shops and restaurants, and a free subscription to *Natural History* magazine. Membership helps support the Museum's scientific, educational, and exhibition programs. For more information or to join, please ask at any information desk, or call the Membership Office, 212-769-5606.

Restrooms: Located on the lower level and on the first, second, and third floors. For exact locations, please ask at any information desk.

Public Telephones: Located on the lower level and on the first and second floors. For exact locations, please ask at any information desk.

Edited by Lucy O'Brien
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